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Projections of educational attainment  
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force

G. Picot

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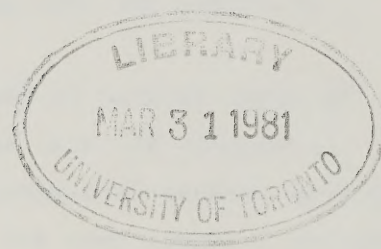


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# The Changing Education Profile of Canadians, 1961 to 2000

Projections of educational attainment  
for the Canadian population and labour  
force

by G. Picot



Projections Section,  
Education, Science and Culture Division,  
Statistics Canada

The views expressed by the author are his own and not  
necessarily those of Statistics Canada

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## Preface

Social science not only helps to explain the present, but ideally, also to predict the future. The latter, of course, is an impossible goal. Nonetheless, some phenomena lend themselves more readily to speculation than others. The age structure and educational attainment of a population are examples of variables that admit a certain degree of predictability.

The author of this paper projects the age and education distributions of Canada's population and labour force for the next twenty years. These two factors bear upon nearly every element of modern life. Commerce, industry, politics, labour, medicine, law, culture, and art are but a few of the sectors that feel the effects of shifting population and education trends. Therefore, in addition to projections of these two variables, the author demonstrates how wide-ranging their influence can be by examining just one aspect of society — the use of free time.

It has been repeatedly documented that the appeal of various forms of leisure is correlated with the participant's age and level of schooling. Assuming that rates of participation by age and education in several activities remain constant, the author illustrates how demand for some types of leisure could grow, while interest in others might diminish.

The same technique could be applied to other spheres of endeavour to assess the impact of the projected demographic and educational changes. Thus, this publication should be useful to researchers in many fields who must make informed forecasts. At the very least, it could serve as the starting point for subsequent projections of the educational attainment of Canadians.

Mr. Warren Clark and Ms. Mary Sue Devereaux of the Education, Science and Culture Division, Statistics Canada provided invaluable assistance in both the analysis of the data and the preparation of the report. The report would not have been completed without their help. Other members of the Projections Section of the Education, Science and Culture Division also assisted with the study.

Mr. Henry Pold and his staff in the Labour Force Survey Division deserve acknowledgement for their patience and prompt responses to repeated requests for special tabulations from labour survey data.

Those who took time to read and comment on the manuscript also deserve thanks, in particular, Dr. Z. Zsigmond, Mr. Y. Ferland, Mr. I. Macredie, and Mr. J. North of Statistics Canada; Mr. Terry Cheney, private consultant; Dr. R. Verma, Demographer, B.C. Ministry of Economic Development; Dr. D. Hoffman and Mr. R. Wilkins, Institute for Research on Public Policy; and Mr. D. Couch, B.C. Academic Council.

For the typing and continued retyping of the report, Mr. Robert Pellarin must be thanked. With considerable patience, Denise Houle and Frédérique Vallières translated the study into French.



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## INTRODUCTION

The principal objective of this work is to present projections of the educational profile of the Canadian population and labour force by age group. This is considered desirable for several reasons. Lifestyle, occupation, leisure activity, and perhaps even values and attitudes are related to age and education. Differences in these characteristics are marked not only among persons with elementary, secondary and post-secondary education, but also among the young, middle-aged and elderly. Because of this, the explanatory and potentially predictive power of age and education characteristics can be quite strong.

As any population group increases in number, its concerns become more prominent. It is well known that the age profile of Canada's population is changing radically — the population is "growing older" — owing to ageing of the "baby boom" generation of the 1950s and the plummeting birth rate of the 1960s and 1970s. However, this is not the only population aberration that social scientists must consider. The education explosion of the sixties produced equally radical changes in the education profile.

There has been much discussion about the effect of the large "baby boom" generation, and the impending increase of the middle-aged and elderly. Such discussions have been based largely on projections of population size and age composition, which have been available for some time at the national level. An additional factor — education — is added here to demonstrate the simultaneous impact of the baby boom and the education explosion on the age structure and educational characteristics of the population and labour force. The intention is to strengthen the quantitative bases for other analyses of the future. This work draws on projections from other sources, primarily population projections produced by the Population Estimates and Projections Division of Statistics Canada, and labour force, enrolment and graduates projections in a Statistics Canada publication, Out of School — Into the Labour Force. The projections should be interpreted as general indications of expected trends, and not precise predictions of the age, education and sex composition of the population and labour force.

The report begins with a description of historical trends in enrolment and educational attainment. Detailed projections to 2000 are then made for the population aged 15 and over, and for the labour force. A short section is devoted to the educational profile of each province in 1977, although provincial projections have not been produced. Finally, the tenor of the report changes from quantitative to speculative as several potential effects of the projected increase in educational attainment on labour force issues and leisure activities are examined. It is beyond the scope of this study to cover all such implications. The points noted are more to stimulate thought than to reach conclusions.

The five appendices include the tables of historical and projected data, alternative projections of the educational profile of the population, an outline of the methodology, a discussion of data problems, and tables relating to leisure activity.

## TERMINOLOGY

Under the British North America Act of 1867, education is a provincial responsibility. Consequently, ten similar but not identical systems have developed in Canada. It is, therefore, impossible to use specific terms that refer to the same thing in all provinces. To solve this problem, some national definitions have been devised for this report. As far as possible, the historical data have been adjusted to conform to these definitions. Thus, "elementary" includes Grades 1 to 8 and pre-Grade 1 where applicable, and "secondary", Grades 9 and up. Post-secondary refers to years of schooling beyond the elementary-secondary system, for which secondary graduation or its equivalent is required. Schooling in programs with a total duration of less than seven months is excluded.

The educational attainment categories used in the report are:

- elementary: Grade 8 or less.
- some secondary: attended secondary school but did not obtain a diploma. Students graduating from one-, two- or three-year secondary vocational programs are included.
- completed secondary: graduated with a secondary school diploma.
- some post-secondary: entered a post-secondary program but did not receive a certificate, diploma or degree.
- post-secondary certificate or diploma: a certificate or diploma granted upon completion of a program requiring secondary school graduation or its equivalent for admission (primarily community college, technical school and university undergraduate diplomas and certificates).
- university degree: a bachelor's, master's or doctoral degree, graduate diploma, or equivalent.

All references to educational attainment are to the highest level achieved. For example, the statement, "25% of the population had an elementary education in 1977," means that for 25% of the population, elementary school was the highest level of formal education obtained. Throughout the report, the term "population" refers to the population 15 years and older. Since virtually all children under that age are still progressing through the school system,



they have been excluded from the educational attainment profiles.

The Labour Force includes all persons who are working (full-time or part-time), or who are unemployed and seeking work.<sup>1</sup> The participation rate is the proportion of the population in the labour force.

---

<sup>1</sup>Excluding residents of the Yukon and Northwest Territories, persons living on Indian reserves, inmates of institutions, and full-time members of the armed forces.

## THE PROJECTIONS IN BRIEF

### THE POPULATION

- \* The proportion of the population 15 years and older with "some" or a completed post-secondary education rose from 12% in 1961, to 26% in 1977. It is projected to increase to 34% by 1990, and to 38% by 2000.
- \* The highly educated are concentrated among the young. In 1977 almost one in three 25-34-year-olds held a post-secondary diploma, certificate or degree, compared with less than one in six 45-54-year-olds, and one in 10 aged 65 and over.
- \* The educational attainment of all age groups is projected to rise in the future. However, the ageing of the baby boom children will cause the largest increases. As this large, highly educated generation matures, they will dramatically raise the educational level of the 30-40 age group in the 1980s, and that of 40-50-year-olds during the 1990s.
- \* The discrepancy in educational attainment between men and women is narrowing. For example, in 1961 there were 2.5 times as many men with degrees as women. In 1977, there were 1.7 times as many, and by 1995 it is projected to be 1.5.

### THE LABOUR FORCE

- \* Since a larger proportion of the highly educated enter the labour force, its overall educational level exceeds that of the population. In 1977, 31.6% of the labour force had "some" or a completed post-secondary education, compared with 26% of the population.
- \* The proportion of the labour force with "some" or a completed post-secondary education is projected to rise to 40.6% by 1990, and 44.6% by 2000.
- \* The impact of the maturing of the baby boom generation will produce the same general trend in the labour force as in the population.
- \* The discrepancy between the education level of men and women is smaller in the labour force than in the population if it exists at all. It is difficult to make a definitive statement on this difference. In 1977, 22.6% of female workers had graduated from a college or university compared with 20.8% of males. However, men are still more likely to hold university degrees than women, with more women labourers graduating from college. These differences are projected to diminish slowly.

## THE PROVINCIAL POPULATIONS

\* In 1977 the populations of Alberta, British Columbia, Ontario and Manitoba were more highly educated than the Canadian average (as measured by the proportion with post-secondary education). This appears to hold for all age groups.

These and other statistical observations, along with the major assumptions underlying the projections, are described in more detail in the following four sections. Some examples of the potential implications of these projections are offered in sections V and VI.



## SECTION I

### BACKGROUND DISCUSSION

It is difficult to determine to what extent increased education has been a response to social, economic and technological changes, or responsible for them. Throughout the twentieth century an ever-rising proportion of the Canadian work force has become employed in white-collar professional and technical jobs, with a simultaneous decline in blue-collar and primary occupations (agriculture, fishing, logging, mining, etc.). In 1911 only 8.5% of the work force were in managerial, professional or technical occupations. The proportion rose gradually to 14.7% in 1951, and approximately 20.1% in 1971. Over the same period employment in primary occupations dropped from 39.5% of 1911's labour force to 19.8% in 1951 and 7.4% by 1971.<sup>1</sup> The trend has continued in the 1970s. Technological change in virtually all industries necessitated more education and training to provide appropriate manpower. For individuals to compete effectively and function in a modernizing labour market, they needed more education. But an equally persuasive reason for achieving higher levels has been the customary link to upward social and economic mobility.

Enrolment rates are a crude but consistent indicator of the tendency of the young to enrol in school. They are calculated by relating full-time enrolment in a specific level (e.g., secondary) to the population that usually attends that level (e.g., 14-17 age group).<sup>2</sup>

Chart 1 shows that the elementary-secondary rate<sup>3</sup> increased from around 78% in 1931 to 100% in 1969, and has since remained more or less constant.

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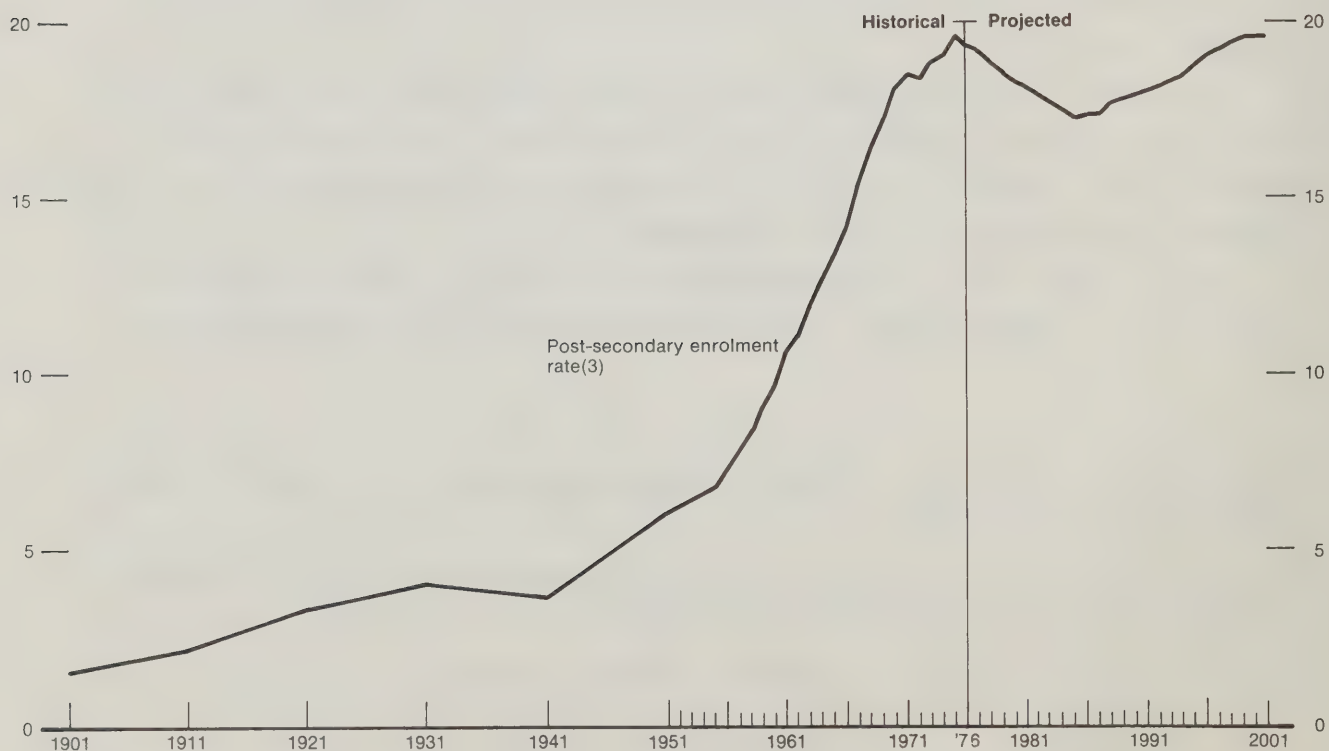
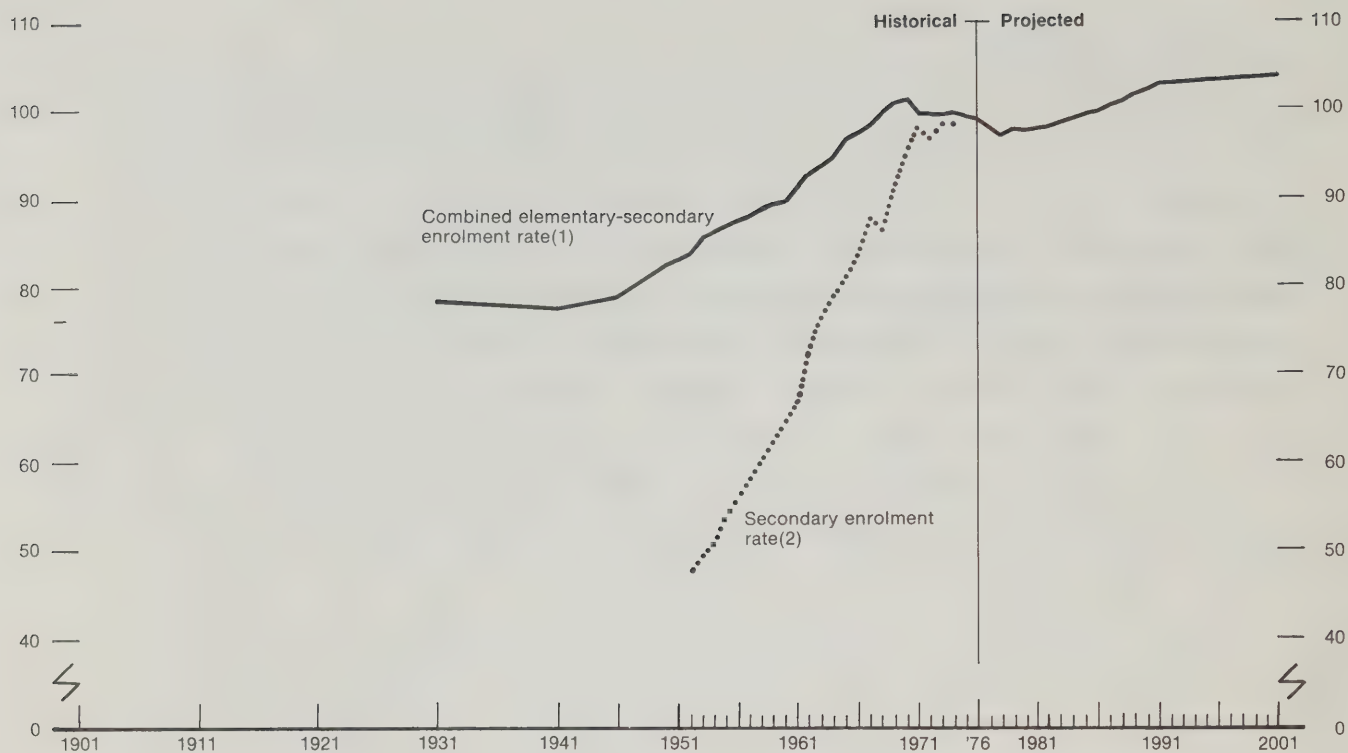
<sup>1</sup>Ostry, S. and Zaidi, M.A., Labour Economics in Canada, 3rd edition, MacMillan of Canada, Toronto, 1979.

<sup>2</sup>The rate can rise above 100% because some students may be older or younger than the age group used in the calculation.

<sup>3</sup>Total elementary-secondary enrolment related to the 5-17 age group.

Chart — 1

# School Enrolment Rates, 1901-2001



(1) Enrolment related to 5-17 age group.

(2) Enrolment related to 14-17 age group.

(3) Full-time enrolment related to 18-24 age group.

Most of the increase was likely due to the secondary rate,<sup>1</sup> which rose from 46% in 1951 to 72% in 1961, and to 98% by the early 1970s.<sup>2</sup> The post-secondary enrolment rate<sup>3</sup> was very low at the beginning of the century: 2% to 3%. It rose slowly to 6% in 1951 and 8.9% in 1959, but then more than doubled during the 1960s to 18.5% in 1971, and by 1975 stood at 19.9%. It fell to an estimated 19.2% in 1978.

The dramatic growth of post-secondary enrolment in the 1960s was probably a special case created by the concurrence of economic, demographic and social factors. Since the early 1950s elementary and secondary enrolment had been rising at an unprecedented pace, resulting in an almost insatiable demand for new teachers. This, in turn, increased post-secondary enrolment, since this system was the principle supplier of new teachers. It is estimated that 30% to 40% of all university graduates entered teaching. And as the baby boom generation, which had been augmented by high immigration in the 1950s, started to enter the post-secondary system in the mid- to late-1960s, further growth was inevitable. The promise of upward social and economic mobility and the labour force advantage associated with a degree prompted many parents to send their sons and daughters to university.

Impetus for expansion of the post-secondary system was provided by the then prevalent theory of human capital.<sup>4</sup> This theory holds that an individual's level of earning depends on the amount that an individual has invested in

---

<sup>1</sup>Total secondary enrolment related to the 14-17 age group.

<sup>2</sup>Restructuring of Quebec's elementary-secondary system in the late 1960s and early 1970s has caused some statistical anomalies in recent national secondary school data. For this reason, the 98% ratio is probably artificially high.

<sup>3</sup>Total full-time post-secondary enrolment related to the 18-24 age group.

<sup>4</sup>Becker, G.S., Human Capital. New York: Columbia University Press, 1964.



acquiring skills of value in the labour market. These skills are considered to consist of two types — labour market experience and years of formal schooling, with particular emphasis on the latter. The theory relates an individual's earnings to these two types of skills. A central thesis of the theory is that people seek additional education, not for the sake of enjoyment of the process itself (i.e., consumption), but in anticipation of future economic and non-economic gains (i.e., as an investment). Analyses based on the theory of human capital often attempt to calculate rates of return on the invested years of formal education.<sup>1</sup>

But economic theories and analyses of the 1960s suggest society as a whole, as well as the individual, benefit from increased levels of education. At the society level, theory held that a highly educated labour force is a leading factor in increased productivity and the economic well-being of an industrialized nation.<sup>2</sup>

Following the end of the 1960s, a number of other developments continued the momentum of post-secondary education into the 1970s:

- the principle of equality of access;
- the women's movement, which put upward pressure of female enrolment ratios in the 1970s;
- the greater availability of community colleges as alternatives to university.

As a result, the number of young people with post-secondary certification mounted steadily to the mid-1970s. During the 1970s, this growth in higher education has been more evident among women than men.<sup>3</sup>

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<sup>1</sup>For example, Kuch, P. and Haessel, W., An Analysis of Earnings in Canada. Statistics Canada, Catalogue 99-758E, 1979.

<sup>2</sup>Bertram, Gordon W. The Contribution of Education to Economic Growth. Staff Study No. 12. Ottawa: Economic Council of Canada, 1966.

<sup>3</sup>The male post-secondary enrolment rate reached its peak in 1971-72 at 22.3, and has slowly declined to 20.4 in 1978-79. The female enrolment rate rose continuously to 18.2 by 1977-78, causing the overall rate to rise to a peak in 1975.

It is widely accepted that education should be furnished largely at public cost because ultimately society will reap the benefits of a highly educated work force. Thus, it was necessary to increase public expenditures, as an ever-increasing proportion of the population went on to higher levels of education. This cost, when assessed as a proportion of the gross national product (GNP), rose constantly until 1970, but has since declined. Total government expenditures (at all levels) on education accounted for 2.4% of the 1950 GNP. This almost doubled to 4.4% in 1960, and doubled again to 9.0% in 1970. By 1977, it had fallen back to 8.0%.

At the post-secondary level, the large increase in expenditures occurred during the 1960s. While the GNP rose 8.4% annually<sup>1</sup> between 1960 and 1970, post-secondary expenditures rose 21% each year, reaching 2.6% of the GNP by 1970. This has recently declined, falling to 2.2% by 1977.<sup>2</sup>

This report is intended to demonstrate the changes in the educational characteristics of the population and labour force that these policies, public pressures, individuals' decisions and increased expenditures brought about.

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<sup>1</sup>Measured in current dollars, not accounting for inflation.

<sup>2</sup>Projections Section, Education, Science and Culture Division; special calculation.





## SECTION II

### EDUCATIONAL ATTAINMENT OF THE POPULATION

#### Major Assumptions

The population projection was not produced by the author, but was chosen from a series published by the Population Estimates and Projections Division of Statistics Canada.<sup>1</sup> The major assumptions in the projection are:

- 1) a decline in the total fertility rate<sup>2</sup> from 1.9 in 1976 to 1.7 by 1991, constant thereafter, and
- 2) annual net migration of 75,000.

The major assumptions that affect educational attainment<sup>3</sup> are those about future enrolment rates, shown in Chart 1. Little significant change in the elementary and secondary rates is projected. The secondary may fluctuate somewhat, but for the purposes of this study the effect would be insignificant. The post-secondary enrolment rate, the most uncertain of the three, is assumed to decline from 19.2% in 1978 to 17.3% by the mid-1980s, and then rise to almost 20% by 2001.<sup>4</sup> The downturn is expected because of the employment problems many graduates, particularly those in the humanities and social

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<sup>1</sup>Statistics Canada, Census and Household Surveys Field, Population Estimates and Projections Division, Population Projections for Canada and the Provinces 1976-2001, Catalogue 91-520 occasional (Ottawa: Statistics Canada, 1979). The population projection chosen was Number 3.

<sup>2</sup>Speaking very generally, the total fertility rate is the expected number of children per woman throughout her childbearing years.

<sup>3</sup>Only formal education is included. Statistics on job retraining, vocational instruction, apprenticeship programs and other similar types of education are not available by age, and so had to be excluded from the calculations.

<sup>4</sup>These assumptions and the rationale for them are from the Statistics Canada study, Out of School - Into the Labour Force, Catalogue 81-570E occasional (Ottawa: Statistics Canada, 1978).

sciences, are now experiencing. As well, current government attempts to limit spending, which are apt to last into the 1980s, will likely prevent the post-secondary system from expanding in the near future. The late 1980s and 1990s, of course, are more uncertain, and an accurate projection of post-secondary enrolment, virtually impossible. With fewer young people available to seek admission, a larger proportion could be accommodated in existing plant and facilities. Furthermore, many analysts are predicting an improvement in the labour market for the young, perhaps by the mid-1980s. The declining number of graduates could produce a labour market scarcity in some disciplines, which in turn, might boost the post-secondary enrolment rate. If the rate were to rise beyond the level assumed here, these projections would underestimate the educational attainment of younger people (i.e., 15-35-year-olds). Alternative projections of educational attainment based on different assumptions about post-secondary enrolment are provided in Appendix II.

Since only formal<sup>1</sup> education is considered, there should be little error in the education profiles projected for age groups over 35. Most of them already have a known level of education, so the projection technique is simply to "age" them.<sup>2</sup> Conversely, the young population's projected attainment is susceptible to error caused by some unforeseen swing in the enrolment rate. However, the alternative projections in Appendix II show that while such error might be introduced in the young age groups, unforeseen changes in enrolment rates will have little impact on the projected educational attainment of the population as a whole. They will not significantly affect the overall trends projected in this study.

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<sup>1</sup>Includes education in any type of public, separate or private school in the regular school system: elementary schools, secondary schools, post-secondary programs in universities and colleges. "Special" schools such as trade schools are not included.

<sup>2</sup>The educational level of older persons can be upgraded by part-time study. An attempt was made to incorporate this in the methodology, but part-time data are plagued with problems, and much estimation is required. Nonetheless, the error in the projected educational attainment of the over-35 population should not be significant.

# Projected Educational Attainment

Chart 2 and Table I show the rising educational level of the Canadian population 15 years of age and older. The proportion whose highest level is elementary school declined from 44% in 1961 to 25% by 1977, and is projected to continue falling to 16.5% by 1990, and to around 12% by 2001. Conversely, the proportion with some or completed post-secondary education rose from 12% in 1961, to 26% in 1977. It is projected to continue increasing to 34% in 1990, and 38% by 2001.

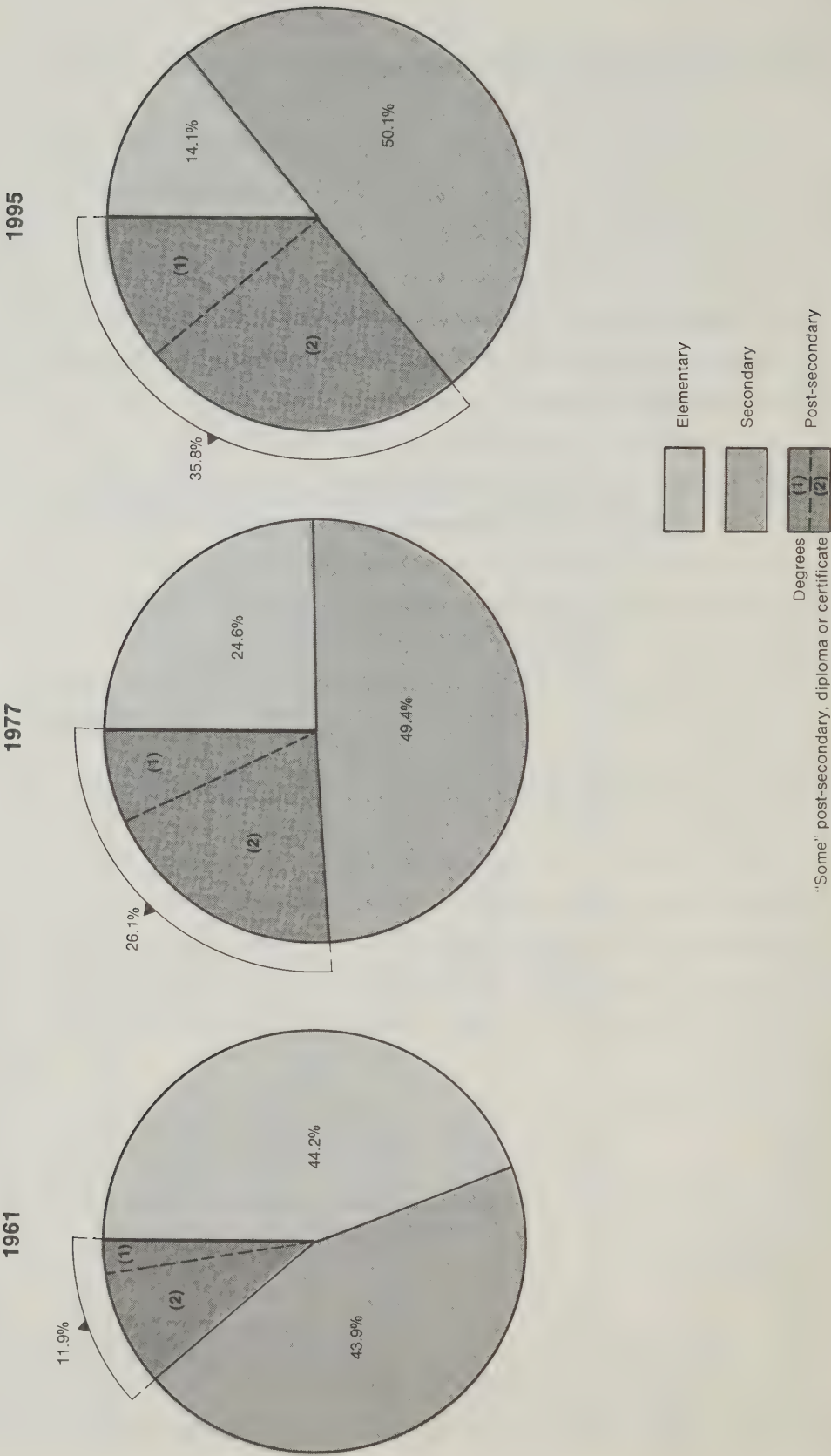
TABLE 1. Percent Distribution of Population 15 and Over, by Education and Sex, Canada, Selected Years, 1961 to 2000

	Elementary	Secondary		Post-secondary				Total	
		Some	Completed	Some	Diploma/certificate	Degree	Sub-total		
								%	000's
Male:									
1961	47.0	29.8	10.7	5.4	3.1	4.0	12.5	100.0	6,053
1977	25.2	36.2	10.9	9.7	8.5	9.4	27.6	100.0	8,602
1990	16.4	35.3	13.2	11.3	11.0	12.8	35.0	100.0	10,235
2001	11.4	34.6	14.6	12.8	12.1	14.6	39.4	100.0	11,331
Female:									
1961	41.4	33.4	14.0	4.6	5.0	1.7	11.2	100.0	5,993
1977	24.0	37.9	13.5	8.3	11.1	5.3	24.6	100.0	8,851
1990	16.5	35.0	15.9	10.4	13.9	8.3	32.5	100.0	10,670
2001	12.1	33.3	17.5	12.3	15.0	9.8	37.1	100.0	11,984
Both sexes:									
1961	44.2	31.6	12.3	5.0	4.0	2.8	11.9	100.0	12,046
1977	24.6	37.1	12.3	9.0	9.8	7.3	26.1	100.0	17,453
1990	16.5	35.2	14.6	10.9	12.5	10.5	33.8	100.0	20,905
2001	11.7	33.9	16.1	12.5	13.6	12.1	38.2	100.0	23,225



Chart — 2

Percent Distribution of the Canadian Population 15 Years and Over, by Educational Level, 1961, 1977 and 1995



## The Interaction of Age and Education

Because the educational attainment of successive generations has increased so markedly, age and education tend to be inversely related. Of special interest is the coincidence of the baby boom generation and aspirations for post-secondary education in the 1960s. Both the 18-24 age group and the post-secondary enrolment rate increased rapidly. The result was not only a very large, but a much more highly educated, generation than ever before. The aging of this cohort will probably work a greater change on the age/educational profile of the population and labour force than has ever previously occurred.

The influence of the baby boom on the overall age distribution can be seen in Chart 3. In 1961 the bulge was in the 0-9 age group. By 1977 it had moved to the 15-29-year-olds; by 1990 it will be in the 25-39 age range, and by 2000, 35-49 assuming no drastic deviations from the projected fertility rate.

Chart 4 and Table 2 show the rising educational attainment of successive age groups. Excluding 15-24-year-olds, many of whom are still students,<sup>1</sup> a definite demarcation in educational level can be seen. In 1977, 40% of the 25-34 age group had some or a completed post-secondary education. The percentage for the 35-44 age group is only 29% and drops with age, falling to 14% among those over 65.

The table shows that the attainment of all cohorts will have increased by 1990, but the most conspicuous advance will be made by the 35-44 age group, which will then contain the oldest members of the highly educated baby boom generation. The proportion with post-secondary education will increase from 29% to 42%. By 2000, 45-54-year-olds will display the most dramatic upturn in attainment.

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<sup>1</sup>The attainment of this age group may appear low in comparison with 25-34-year-olds because a large percentage has not completed their formal education.

# Age Distribution of the Total Canadian Population, 1961, 1977 and 2000

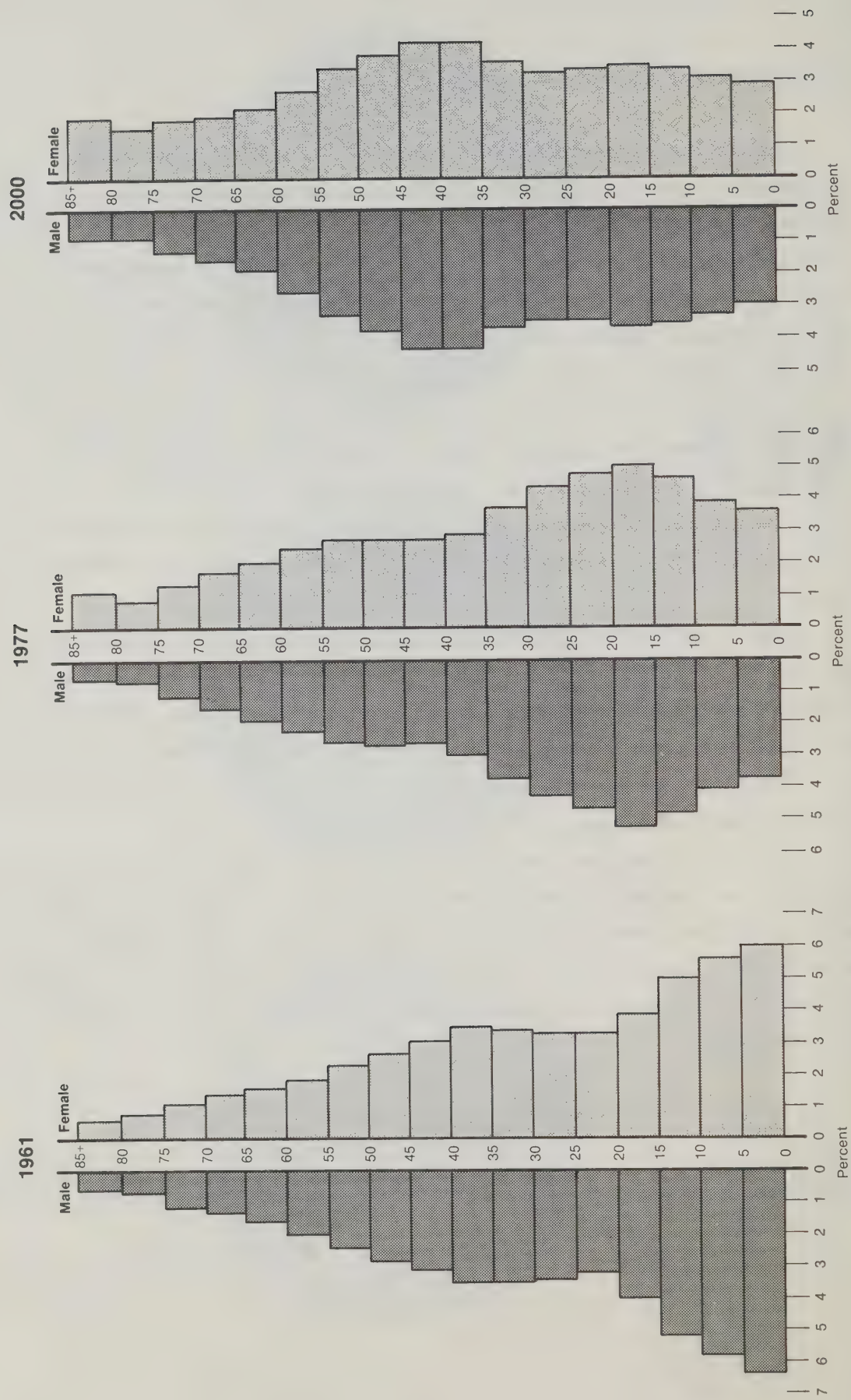




Chart — 4

Percent Distribution of Selected Age Groups, by Educational Level, 1977 and 2000

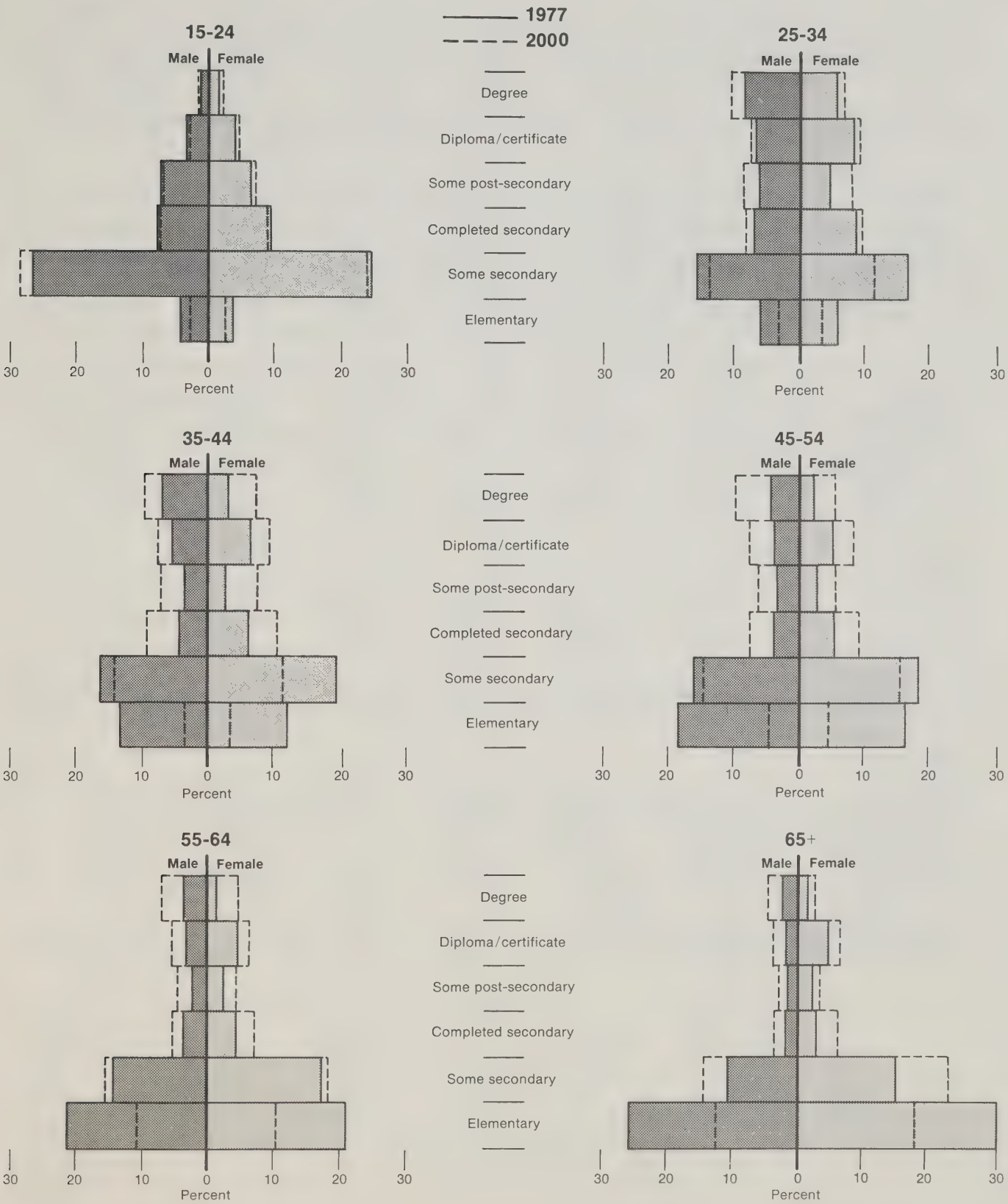


TABLE 2. Educational Attainment of the Population, Percent Distribution, by Age Group, Canada, 1961, 1977, 1990, and 2000

	25-34	35-44	45-54	55-64	65 and over	Total 15 and over
1961:						
Elementary	37.0	42.2	50.0	61.5	68.5	44.2
Secondary	48.0	44.6	38.5	29.9	25.5	43.9
Post-secondary	15.0	13.2	11.5	8.6	6.0	11.9
All levels	100.0	100.0	100.0	100.0	100.0	100.0
1977:						
Elementary	12.0	25.1	34.8	42.0	55.9	24.6
Secondary	48.0	45.9	43.9	39.9	30.1	49.4
Post-secondary	40.0	28.9	21.4	18.1	13.9	26.1
All levels	100.0	100.0	100.0	100.0	100.0	100.0
1990:						
Elementary	6.3	9.6	20.9	31.9	40.5	16.5
Secondary	45.7	48.0	46.7	44.7	40.9	49.8
Post-secondary	47.9	42.4	32.4	23.4	18.6	33.8
All levels	100.0	100.0	100.0	100.0	100.0	100.0
2000:						
Elementary	6.1	6.1	10.1	22.0	31.3	12.1
Secondary	43.5	45.9	47.7	46.3	46.4	50.0
Post-secondary	50.4	48.0	42.3	31.7	22.4	37.8
All levels	100.0	100.0	100.0	100.0	100.0	100.0

It is of interest to note that the education profile of the 25-34 age group in 1977 is similar to that projected for the entire population in 2000. From an educational attainment viewpoint, today's 25-34-year-olds epitomize the entire adult population of 2000.

#### The Post-secondary-educated Population

The "baby boom" combined with the post-secondary "boom" of the sixties plus an immigration policy that encouraged the highly educated to come to Canada, resulted in an almost fourfold increase in degree-holders. Numbers rose from 343,000 in 1961 to 1,272,000 in 1977. The advance is projected to continue to 2,251,000 in 1991, and 2,813,000 by 2001.

Table 3 compares ten-year growth rates. The 1971-81 decade will witness the greatest upswing of post-secondary graduates: the number of degree-holders rises 124%; post-secondary certificate- or diploma-holders, 122%. Yet the population 15 and over grows only 23.7%. During the 1980s and 1990s this rise will be tempered by the decreasing number of young people and projected levelling of the post-secondary enrolment rate. Throughout the entire period, however, the rate of increase of the highly educated exceeds that of the population 15 and over.

TABLE 3. Growth of population with post-secondary certification, Canada, 1961-2001

	Degree-holders		Holders of diplomas/ certificates		Total population 15 and over	
	Number	% increase during decade	Number	% increase during decade	Number	% increase during decade
	000's		000's		000's	
1961	343		486		12,046	
1971	690	101.2	914	88.1	15,188	26.1
1981	1,548	124.3	2,034	122.5	18,786	23.7
1991	2,251	45.4	2,659	30.7	21,110	12.4
2001	2,813	25.0	3,156	18.7	23,225	10.0

Not only has the number of post-secondary-educated persons multiplied, but as noted in the previous section, they are concentrated in the younger age group. Chart 5 shows that in 1961, roughly one-third of degree-holders were 34 or under, another third, 35-45, and the rest, over 45. In 1977 more than half were under 35, and fully 41% between 25 and 35. This will change by the 1990s as degree-holders become more equitably distributed by age. By 2000 the plurality is projected to be in the 35-44 age group. However, the total number with degrees will have grown eightfold since 1961.

The same general pattern exists for those with post-secondary diplomas or certificates, who are now overrepresented among the young, but will be more evenly distributed by the 1990s.

In 1961 about one in eleven persons aged 25-34 had graduated from college or university. By 1977 the number was one in 3.4, and by 1995 it is projected to be one in three. The projected increase is not great because of the assumption that the post-secondary enrolment rate will level off.

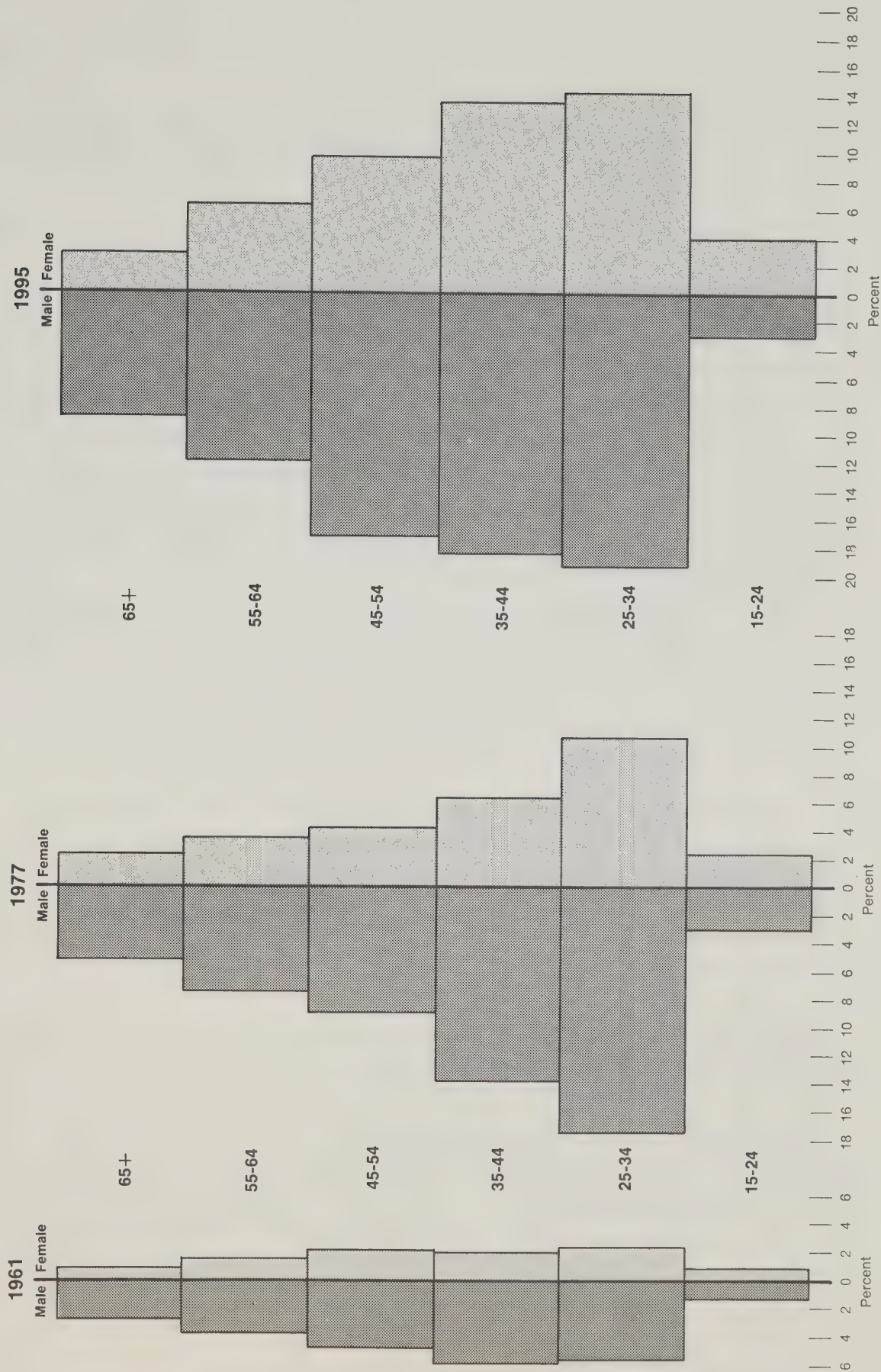
#### Educational attainment of Men and Women

Accompanying the increasing number of post-secondary graduates is a change in the male-female mix. Males have traditionally had more formal education, but the gap is closing. In 1961, for the population 15 and over, one man in 25 had a degree, compared with one woman in 59. By 1977 the respective numbers were one in eleven and one in nineteen. The projections for 1995 are one in seven men, one in eleven women. Among the under 35 population, the discrepancy is smaller. Soaring female post-secondary enrolment in the seventies has led to a more equitable balance of degree-holders between young men and women. In 1977, women received 45% of all degrees granted.

Although in the past more men acquired degrees, more women held post-secondary diplomas or certificates (primarily in nursing and teaching). This difference has also narrowed. In 1961, 1.6 times as many women as men had diplomas or certificates. By 1977 the ratio had dropped to 1.3, and is projected to remain more or less at that level.



Percent of Population with Degrees, by Sex and Age Group, 1961, 1977 and 1995





### SECTION III

#### EDUCATIONAL ATTAINMENT OF THE LABOUR FORCE

##### Introduction

Because the more highly educated have a greater tendency to join the labour force than the less educated, it's general educational level is higher than that of the population. In 1977 nearly a third of the labour force had "some" or a completed post-secondary education, compared with about one-fourth of the population. Conversely, less than 18% of the labour force had only elementary education, compared with 25% of the population. This increased tendency by the highly educated to work, particularly among women, is shown in Chart 6 and Table 4. For example, the labour force participation rate<sup>1</sup> among women over 25 with elementary education is 24%; with secondary graduation, 51% and 66% for university graduates. The corresponding rates for men are: elementary, 63%; secondary graduation, 90%, and degree, 91%. Table 4 shows that the positive correlation between the participation rate and education holds for all age groups except 15-24, among whom there are a large number of students.<sup>2</sup>

As in the population, the younger segment of the labour force has more education. In 1977 almost one in every three workers aged 25-34 had graduated from college or university, compared with one in four aged 35-44, one in 5.5 aged 45-54, and one in six aged 55-64.

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<sup>1</sup>The participation rate for any given group in the population (defined by age, sex, educational attainment, etc.) is the percentage of the population belonging to that group which is in the labour force.

<sup>2</sup>It should be noted that there is also a positive correlation between earning power and the participation rate, particularly among women. Since earning power and education are related, it is difficult to specify a causal relationship based on these data, although there is definitely a positive correlation. (See Ostry and Zaidi, Labour Economics in Canada, 1979).



Chart — 6

Labour Force Participation Rates for the Population 25 Years and Over, by Educational Level, 1977

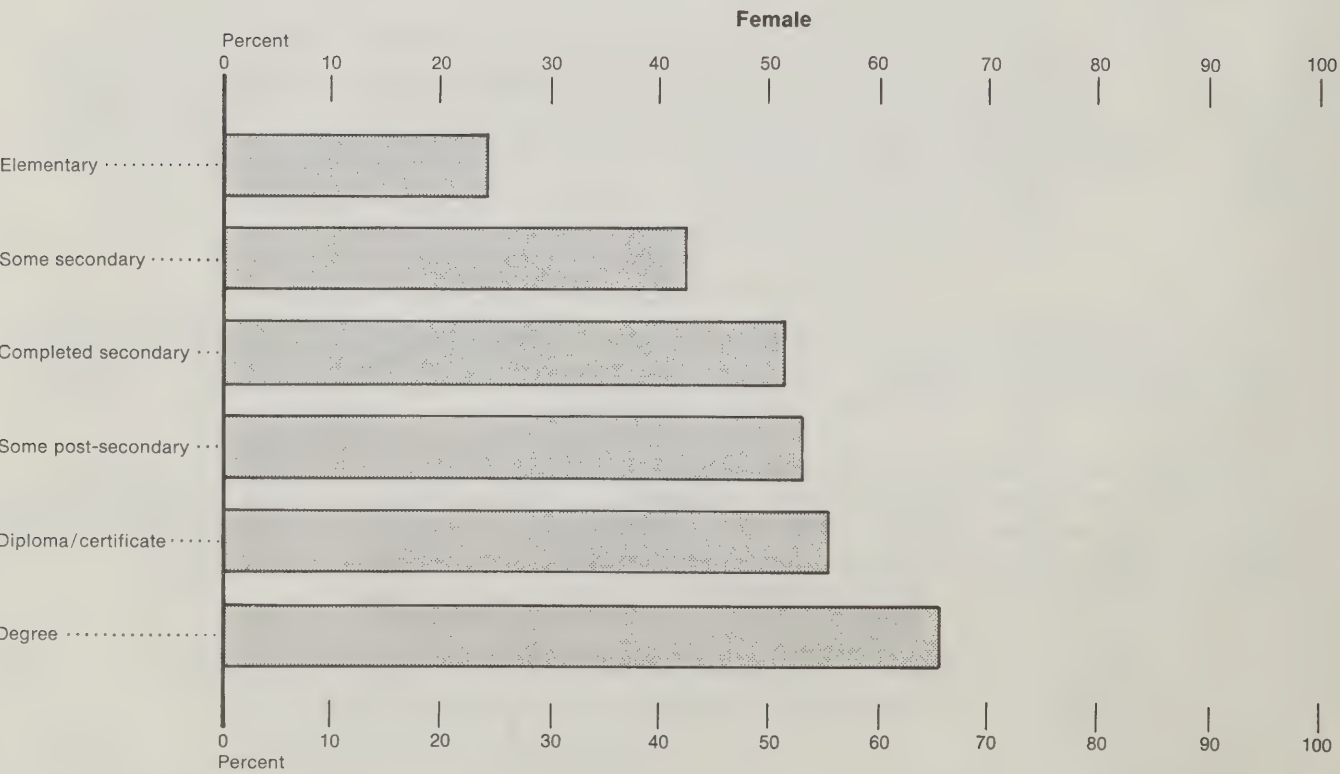




TABLE 4. Annual Average Labour Force Participation Rates, by Education, Age, and Sex, 1977

		Elementary	Some secondary <sup>1</sup>	Completed secondary <sup>1</sup>	Some post-secondary	Diploma/certificate	Degree	Total
15-19	M	43.3		55.4	52.8	...	...	54.0
	F	29.4		50.0	52.0	...	...	46.6
	T	37.5		51.3	52.4	...	...	50.4
20-24	M	81.6		92.3	71.2	83.3	79.6	85.1
	F	37.9		67.3	67.2	81.7	80.1	68.8
	T	61.8		79.7	69.4	82.4	79.9	77.0
25-34	M	89.5	96.6	96.6	94.6	96.7	95.6	95.3
	F	38.7	50.1	56.3	59.2	64.3	72.8	55.2
	T	64.1	72.4	74.1	78.9	79.0	87.0	75.2
35-44	M	91.3	96.8	97.2	97.6	98.5	98.6	95.9
	F	43.7	54.4	60.3	65.8	65.9	70.3	55.7
	T	68.6	74.2	76.4	82.9	80.9	89.9	76.0
45-54	M	86.7	94.9	95.8	95.4	96.3	98.1	92.4
	F	36.3	50.9	56.5	57.6	64.2	68.8	49.2
	T	62.9	71.4	73.4	77.5	78.0	88.6	70.7
55-64	M	69.8	79.8	82.8	83.3	83.5	86.6	76.6
	F	22.3	35.1	39.7	40.8	47.2	52.0	32.2
	T	46.3	54.9	58.3	63.3	61.8	75.0	53.6
65+	M	12.0	18.6	19.6	20.6	19.7	31.5	15.5
	F	2.4	4.9	7.2	8.0	7.7	12.7	4.2
	T	6.8	10.4	12.0	13.5	11.0	24.4	9.1
Total	M	64.0	76.6	90.9	79.6	89.3	91.0	77.7
	F	25.0	42.7	63.9	56.7	60.6	68.1	45.9
	T	44.7	59.0	75.8	68.9	72.8	82.6	61.5

<sup>1</sup>Participation rates for "some" and "completed secondary" school combined are directly from the Labour Force Survey. Participation rates for "some" and "completed secondary" school separately are derived by applying 1976 Census ratios to the Labour Force Survey data.

Note: Participation rates shown here refer to the labour force source population which excludes residents of the Yukon and Northwest Territories, persons living on Indian reserves, inmates of institutions and full-time members of the armed forces. These exclusions account for less than 2.0% of the total population 15 and older. The participation rates shown in this table would therefore differ slightly from those relating to the entire population.

Source: Statistics Canada, Labour Force Survey Division.

The difference in attainment of males and females is substantially less in the labour force than in the population, because females with lower levels of education tend not to work. For example, just 13% of female workers have only an elementary education compared with 21% of all the men in the labour force. Furthermore, a slightly larger proportion of women workers have some or a completed post-secondary education - 32.8% compared with 30.8% of males. This latter observation needs some explanation. Women are apt to hold post-secondary diplomas or certificates, whereas men are more likely to acquire degrees. Thus, 11% of male workers hold degrees, compared with 8% of women; conversely, 15% of the females have post-secondary diplomas or certificates, compared with 10% of the men. Lack of a breakdown by discipline or of more detailed educational categories renders these comparisons very general. Nonetheless, these highly aggregated data suggest that the overall level of education of men and women who work is similar.

TABLE 5. Educational attainment of the labour force, percent distribution, by age group and sex, 1977

[illegible]

## Assumptions

The projection of the labour force by age and sex was not produced for this study, but was taken from Out of School — Into the Labour Force. The participation rate assumptions are: (1) for females, an increase from 46% in 1977 to 53% by 1986, and to 55% by the end of the century<sup>1</sup>, and (2) for males, a slight rise from 77.7% in 1977 to 78.4% in 1986, but then a drop to 76.1% by 2000. To estimate the labour force educational attainment, participation rates by educational level were projected.<sup>2</sup>

The emphasis here is not on the projected size of the labour force, but its educational attainment.<sup>3</sup>

## Projections

The proportion of the labour force with partial or completed post-secondary education<sup>4</sup> grew from around 9% in 1961 to 32% in 1977, and is projected to reach 43% by 1995 (Chart 7), and 45% at the turn of the century (Table 6). Numerically, this is a staggering increase. Degree-holders doubled between 1961 and 1971 (from 278,000 to 592,000) and then rose another 75% by 1977

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<sup>1</sup>Projected female labour force participation rates may be conservative. The annual average rate for females was 47.8% in 1978, and in 1979 it is likely to reach 49% with no sign of a decline in the rate of increase. (The January–November average was 48.9%). Thus, two years after 1977 the female participation rate is already almost halfway to what it is projected to be in 1986, with six years yet to go.

<sup>2</sup>Ideally, one should have time series of participation rates by age and education on which to base the projections. A consistent, long-range time series does not exist. Therefore, it was assumed that participation rates for all educational levels within any given age group increased or decreased at the same rate. See Appendix III for more details.

<sup>3</sup>Recently, the labour force figures were adjusted based on a more recent estimate of the 1977 population. This report was written before these adjustments were available, so the numbers reported here are the original estimates of the 1977 labour force as reported in Labour Force Annual Averages 1975–1978, Catalogue 71–529. This does not affect the educational distribution of the 1977 labour force.

<sup>4</sup>These are approximate comparisons, based on data from two sources, the 1961 Census and the 1977 Labour Force Survey.

Percentage Distribution of the Canadian Labour Force, by Educational Level, 1961, 1977 and 1995

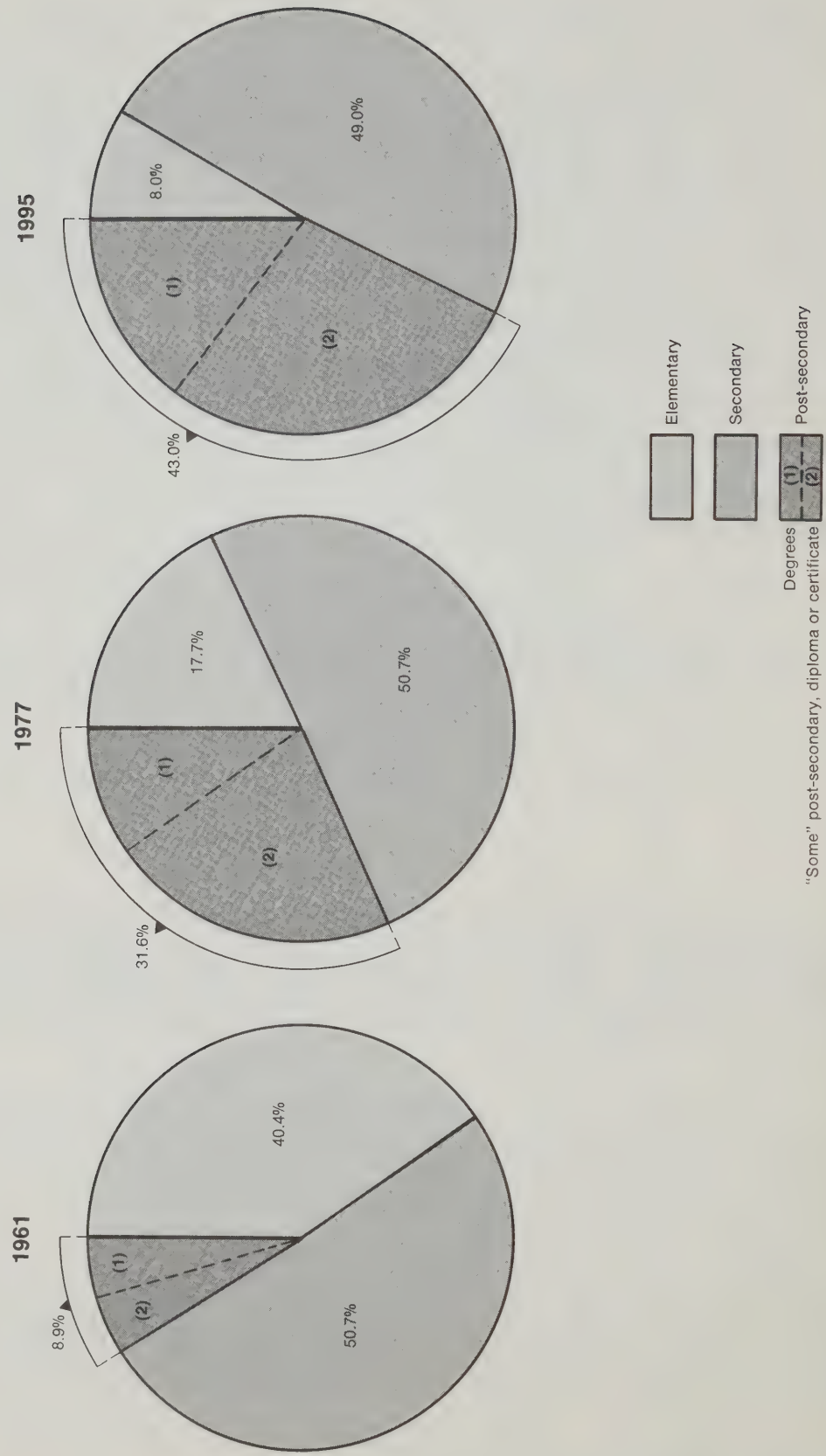




TABLE 6. Educational Attainment of the Labour Force, Percent Distribution, by Sex, 1977, 1985 and 2000

	Elementary	Some secondary	Completed secondary	Some post-secondary	Diploma/certificate	Degree	Post-secondary subtotal	Total	
								Percent	Number (000's)
Male:									
1977	20.7	35.7	12.8	10.0	9.8	11.0	30.8	100.0	6,594
1985	14.5	34.7	14.7	11.3	11.6	13.3	36.1	100.0	7,528
2000	8.2	32.7	16.4	13.4	13.2	16.1	42.7	100.0	8,494
Female:									
1977	13.0	35.3	18.9	10.2	14.7	7.9	32.8	100.0	4,022
1985	9.1	31.6	19.8	11.9	17.0	10.7	39.5	100.0	5,238
2000	5.1	26.8	20.9	14.8	18.7	13.7	47.2	100.0	6,432
Both sexes:									
1977	17.8	35.6	15.1	10.1	11.7	9.8	31.6	100.0	10,616
1985	12.3	33.4	16.8	11.5	13.8	12.2	37.5	100.0	12,766
2000	6.8	30.2	18.3	14.0	15.6	15.1	44.6	100.0	14,926

(to 1,042,000). Their numbers are projected to almost double again by 1995 (2,074,000), while the projected increase of the labour force during the same period is only 35% (Chart 8).

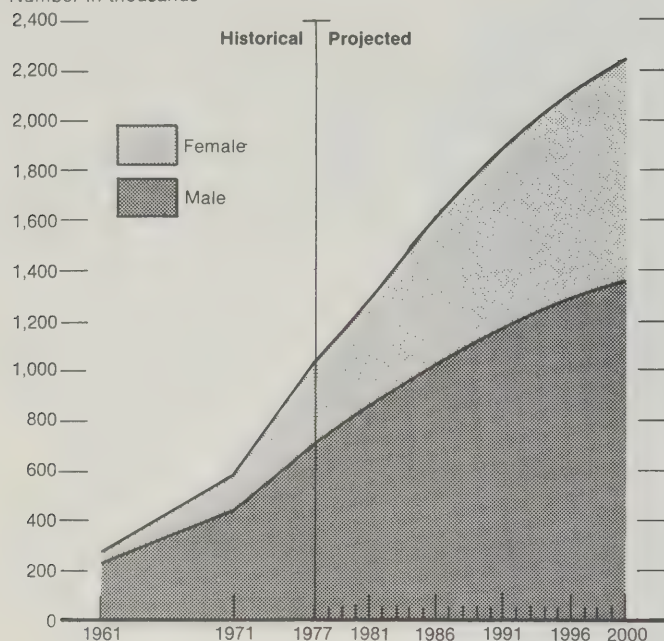
Females constitute a growing share of this highly educated manpower. In 1961, 17% of all workers with degrees were women. By 1977 the proportion had increased to 30%, and by 1995 it is expected to be 39%.

The large number of highly educated young people entering the labour force in the late 1960s and 1970s raised the education profile of young workers. Over the next twenty years, today's well-educated 25-34-year-olds will enter the 35-44 and then the 45-54 age ranges. They will displace older workers with less attainment, but, in turn, will be succeeded by persons with equal

Chart — 8

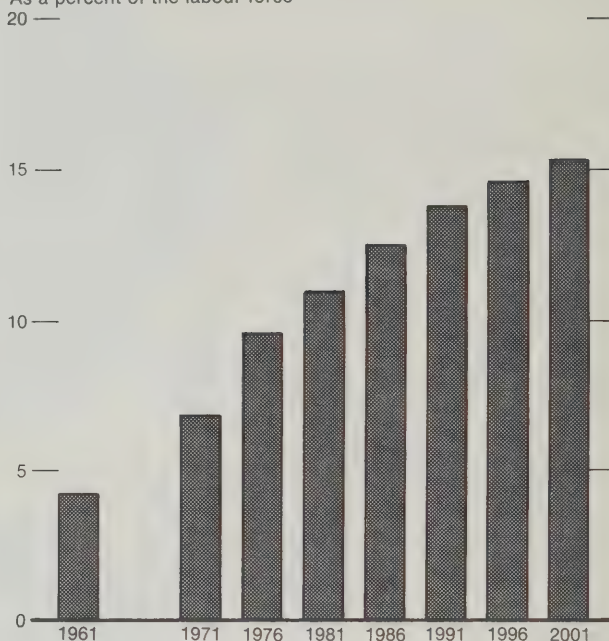
# Degree Holders in the Labour Force, 1961-2000

Number in thousands

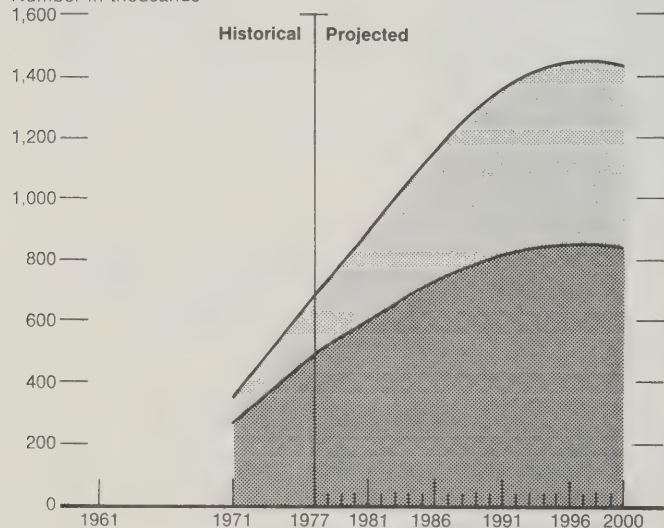


## All Ages

As a percent of the labour force

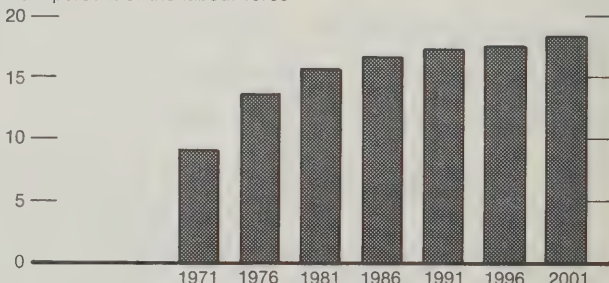


Number in thousands

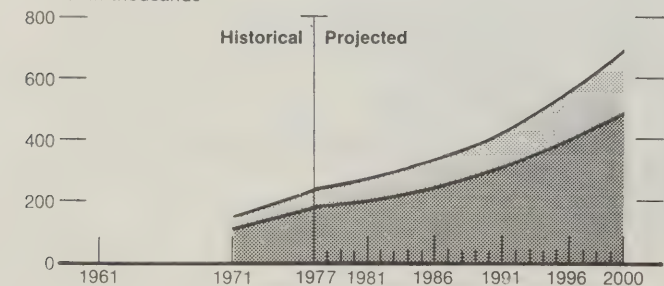


## 25-44 Age Group

As a percent of the labour force

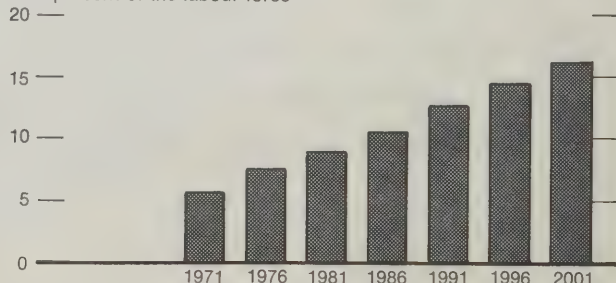


Number in thousands



## Over 45

As a percent of the labour force



or perhaps more education. Slowly, the concentration of higher education among the young will spread throughout the labour force.

Table 7 shows that between now and the late 1980s, 25-44-year-old workers will undergo the most rapid upturn in educational attainment. The proportion with at least some post-secondary education increases from 39% to 45% between 1977 and 1985, and forms a majority (52% by 2000). As the highly educated baby boom generation starts to enter the 45+ age group in the late 1990s, its education profile will experience the same uptrend. The proportion of 45-64-year-olds with post-secondary education is expected to grow from 28% in 1985 to 43% by 2000.

TABLE 7. Educational Attainment of the Labour Force, Percent Distribution, by Age Group, 1977, 1985, and 2000

	Elementary	Some secondary	Completed secondary	Some post-secondary	Diploma/certificate	Degree	Post-secondary subtotal	Total
15-24:								
1977	5.5	42.8	24.2	14.4	9.2	3.9	27.5	100.0
1985	4.9	42.2	23.9	14.0	10.4	4.5	29.0	100.0
2000	3.6	44.9	23.1	14.5	9.5	4.4	28.5	100.0
25-44:								
1977	15.4	32.3	13.5	9.9	14.5	14.4	38.8	100.0
1985	8.8	29.0	16.8	12.5	16.5	16.5	45.4	100.0
2000	5.2	24.7	18.7	15.4	17.7	18.3	51.5	100.0
45-64:								
1977	33.0	34.2	9.1	6.3	9.5	8.0	23.7	100.0
1985	26.3	35.0	10.2	7.1	11.3	10.1	28.5	100.0
2000	11.7	30.9	14.9	11.1	15.5	15.9	42.5	100.0
65+:								
1977	41.9	29.1	6.1	5.8	7.9	9.2	22.9	100.0
1985	31.3	33.3	8.1	6.7	9.6	11.0	27.3	100.0
2000	17.7	36.4	11.4	8.2	12.4	13.8	34.4	100.0
15+:								
1977	17.8	35.6	15.1	10.1	11.7	9.8	31.6	100.0
1985	12.3	33.4	16.8	11.5	13.8	12.2	37.5	100.0
2000	6.8	30.2	18.3	14.0	15.6	15.1	44.6	100.0

There is another aspect to the changing educational profile of the population and labour force which has not been pursued in this work, primarily due to data and methodological problems, but that should be mentioned. The mix of the type of degrees and diplomas in the population may change, along with their number. During the mid- and late 1970s, there has been a movement by students towards labour market oriented programs such as business administration, computer science, engineering, etc., and away from the humanities and some parts of the social sciences.<sup>1</sup> Hence, there will be a change in the mix of disciplines among degree and diploma holders in the population.

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<sup>1</sup>For example, see Statistics Canada, Education, Science and Culture Division, Projections Section, Education in Canada, 6 volumes to data, Catalogue 81-229 annual (Ottawa: Statistics Canada, 1973-1979).



## SECTION IV

### EDUCATIONAL ATTAINMENT OF THE PROVINCIAL POPULATIONS IN 1977

Because of differences in educational systems, economies, lifestyles, and migration patterns, there is considerable variation in the education profile of each province. No provincial projections have been produced, but the 1977 situation is noteworthy (Chart 9 and Table 8).

Alberta and British Columbia had the highest percentages of persons with post-secondary training, whereas Newfoundland had the lowest. In the two westernmost provinces approximately 30% of the population had at least attended a post-secondary institution; the proportion (26% for Canada as a whole) was 21% in Newfoundland. Conversely, only 16% of the Alberta and British Columbia populations listed elementary as their highest level (25% for Canada), but 35% in Newfoundland.

These provincial variations could result from differences in education systems, enrolment patterns, or migration. No detailed causal analysis is offered here. In general, however, highly educated people are more mobile than the less educated, so provinces that gain population through interprovincial or international migration may also receive a boost in the general level of attainment. And on the other hand, out-migration could produce a drop. Since Ontario, Alberta, and British Columbia have long been net gainers of population, migration likely played a positive role. Although precise inter-provincial comparisons of post-secondary enrolment rates are somewhat tenuous, these provinces also have had a relatively high proportion of their young people enrol in college or university. Paradoxically, despite net out-migration from Manitoba every year since 1961-62 except 1973-74, it is still around the Canadian average in educational attainment. This is probably because the post-secondary enrolment rate is relatively high.<sup>1</sup>

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<sup>1</sup>Data on enrolment rates are given in Table 22, "Post-secondary enrolment related to relevant age group population, Canada and provinces, 1972-73 to 1977-78," Statistics Canada, Education, Science and Culture Division, Projections Section, Education in Canada: A Statistical Review for 1977-78, Catalogue 81-229, annual (Ottawa: Statistics Canada, 1979), 86-89.

Chart — 9

# Educational Level of the Population 15 Years and Over, by Province, 1977

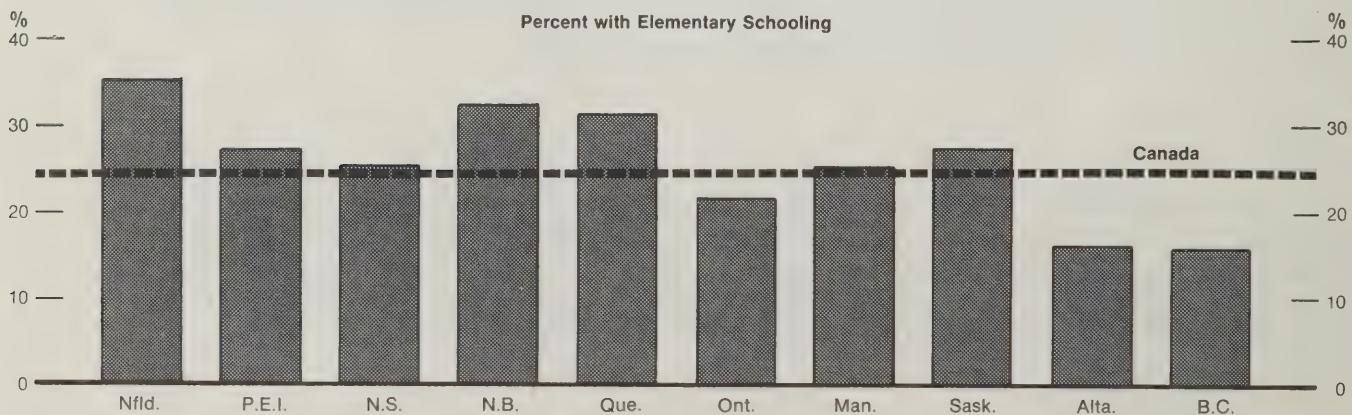
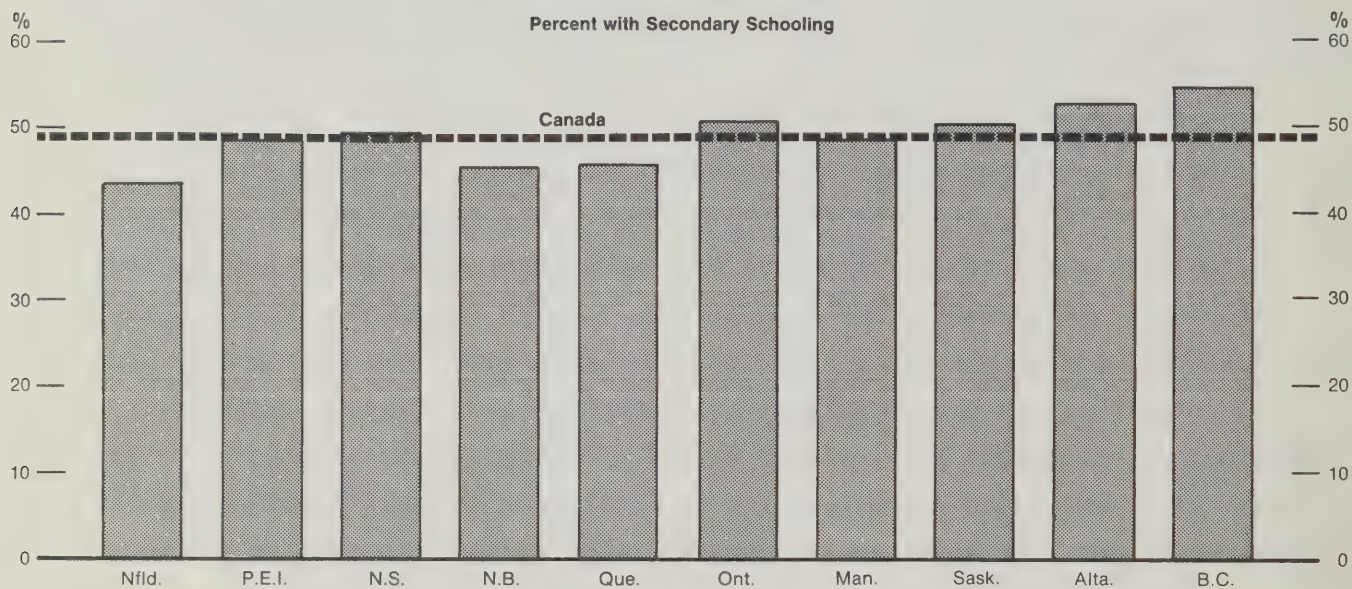
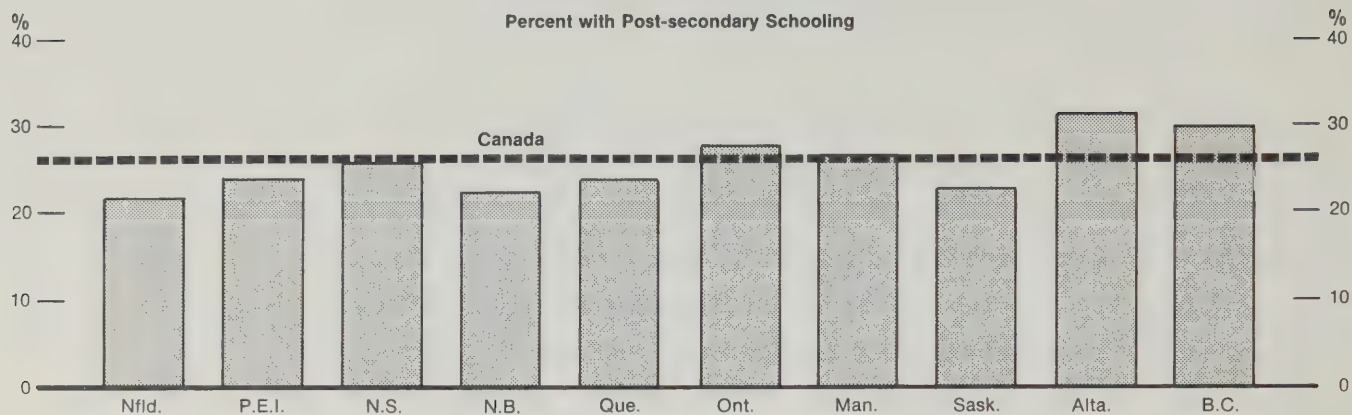


TABLE 8. Educational Attainment of the Population 15 and Over, Percent Distribution, by Province, 1977

	Elementary	Secondary		Post-secondary				Total <sup>1</sup>	
		Some	Completed	Some	Diploma/ certifi- cate	Degree	Sub- total	(%)	('000s)
Newfoundland	35.2	35.6	8.0	6.8	10.7	3.7	21.2	100.0	379
Prince Edward Island	27.9	43.1	5.6	9.4	9.0	5.0	23.4	100.0	87
Nova Scotia	25.8	41.7	7.6	6.9	11.6	6.5	25.0	100.0	617
New Brunswick	33.0	34.9	10.3	6.4	9.9	5.6	21.9	100.0	496
Quebec	31.1	31.2	14.6	7.2	9.9	6.0	23.1	100.0	4,753
Ontario	21.6	38.3	12.5	9.7	9.5	8.4	27.6	100.0	6,317
Manitoba	25.0	40.5	8.1	9.6	10.0	6.8	26.4	100.0	768
Saskatchewan	27.7	41.5	8.6	7.5	8.8	5.8	22.1	100.0	690
Alberta	16.6	41.4	11.3	11.1	11.0	8.6	30.7	100.0	1,391
British Columbia	16.0	41.3	13.1	11.6	9.8	8.2	29.6	100.0	1,910
Canada	24.6	37.1	12.3	9.0	9.8	7.3	26.1	100.0	17,452

Note: Distribution was derived from the Labour Force Survey 1977 Annual Averages, Statistics Canada, Labour Force Annual Averages 1975-1978, Catalogue 71-529, except for the separation between some and completed secondary schooling, which was estimated based on 1976 Census data.

<sup>1</sup>Total 1977 population is Projection no. 3 in Statistics Canada, Population Projections for Canada and the Provinces 1972-2001, Catalogue 91-520.



However, determining a provinces' educational attainment standing based only on total population can be misleading, and perhaps mask recent events. It is possible that although a province ranks below the Canadian average when examining the population as a whole, educational attainment among its young people is higher than the Canadian average. This could occur due to a recent rapid rise in post-secondary education in the province, or possible due to immigration of the highly educated young. While such an event is possible, it does not seem to have occurred. Tables 9 and 10 show that the rank-ordering of provinces by educational attainment<sup>1</sup> is roughly the same in the young and middle age groups as for the population as a whole. The rank-ordering of provinces is shown for the 25-34-year-olds (educated between 1965 and 1975) and 45-54-year-olds (educated between 1945 and 1955). In both cases, and for the population as a whole, the proportion of the population with a post-secondary education is above the national average in Alberta, British Columbia, Ontario and Manitoba. The remaining provinces fall below the national average. It would seem that while the educational level of the population has been increasing everywhere, the rank-ordering among provinces is fairly consistent for all age groups.

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<sup>1</sup>As measured by the proportion of the population with "some" or a completed post-secondary education.



TABLE 9. Educational Attainment of the 25-34 Age Group, by Province, 1977

	Rank order <sup>1</sup>	Percent distribution		
		Elementary	Secondary	Post- secondary
Alberta	1	4.8	45.8	49.4
British Columbia	2	5.6	49.0	45.4
Ontario	3	10.3	47.8	41.9
Manitoba	4	11.1	47.2	41.7
Nova Scotia	5	17.2	44.5	38.3
Saskatchewan	6	9.7	52.2	38.1
Prince Edward Island	7	16.6	46.9	36.5
Newfoundland	8	22.7	43.1	34.2
Quebec	9	16.6	49.3	34.1
New Brunswick	10	20.7	46.4	32.9
Canada		12.0	48.1	39.9

TABLE 10. Educational Attainment of the 45-54 Age Group, by Province, 1977

	Rank order <sup>1</sup>	Percent distribution		
		Elementary	Secondary	Post- secondary
British Columbia	1	20.2	51.9	27.9
Alberta	2	22.2	52.7	25.1
Ontario	3	30.2	46.1	23.7
Manitoba	4	30.7	45.6	23.7
Nova Scotia	5	31.8	47.4	20.8
Saskatchewan	6	33.9	46.6	19.5
New Brunswick	7	48.4	32.5	19.1
Prince Edward Island	8	38.7	43.5	17.8
Quebec	9	48.7	35.6	15.7
Newfoundland	10	53.8	33.1	13.1
Canada		34.8	43.8	21.4

<sup>1</sup>As measured by the proportion having post-secondary education. Average number of years of schooling could not be computed from available data.



## SECTION V

### SOME CONSEQUENCES OF A BETTER-EDUCATED LABOUR FORCE

But what is the significance of the rising educational level of the labour force? The impact of such a change is likely to be far reaching, and since the change is continuous, many of its effects are already evident. No attempt is made here to outline all possible consequences. Rather, a few are mentioned.

One area that has received much attention in the late 1970s is the employment of college and university graduates. The prevailing philosophy of the fifties and sixties was that "increasing efforts in the area of education are a pre-requisite for maintenance or acceleration of productivity growth".<sup>1</sup> But this belief has given way in some circles to concern that there are more young workers with university degrees than there are jobs requiring that level of education. This applies particularly to graduates in the humanities and social sciences, and some graduates in the general sciences.

While graduates in computer science, engineering, business administration, and other labour force-oriented fields are experiencing little difficulty in securing employment, for many in other disciplines the labour market is expected to remain difficult through the early 1980s. The annual gain in the number of post-secondary graduates, which characterized this decade, is projected to continue. During the 1970s the number seeking employment increased faster than jobs requiring that level of education.<sup>2</sup> This was due not so much to the downturn in job creation, as to the rapid increase in the number of graduates seeking employment. This was caused by the "baby boom", combined with the increased tendency of the young to continue to college or university (see Chart 10).

One key area that suffered a shortfall in job availability was teaching. It had been a prime source of employment for university graduates, absorbing one-third to one-half of them in the late 1960s and early 1970s. Elementary enrolment started to decline around 1970, and with it the need for new teachers. In Canada, enrolment, and hence, demand for teachers, is not expected to pick up until the mid-1980s, although some provinces expect an earlier increase.

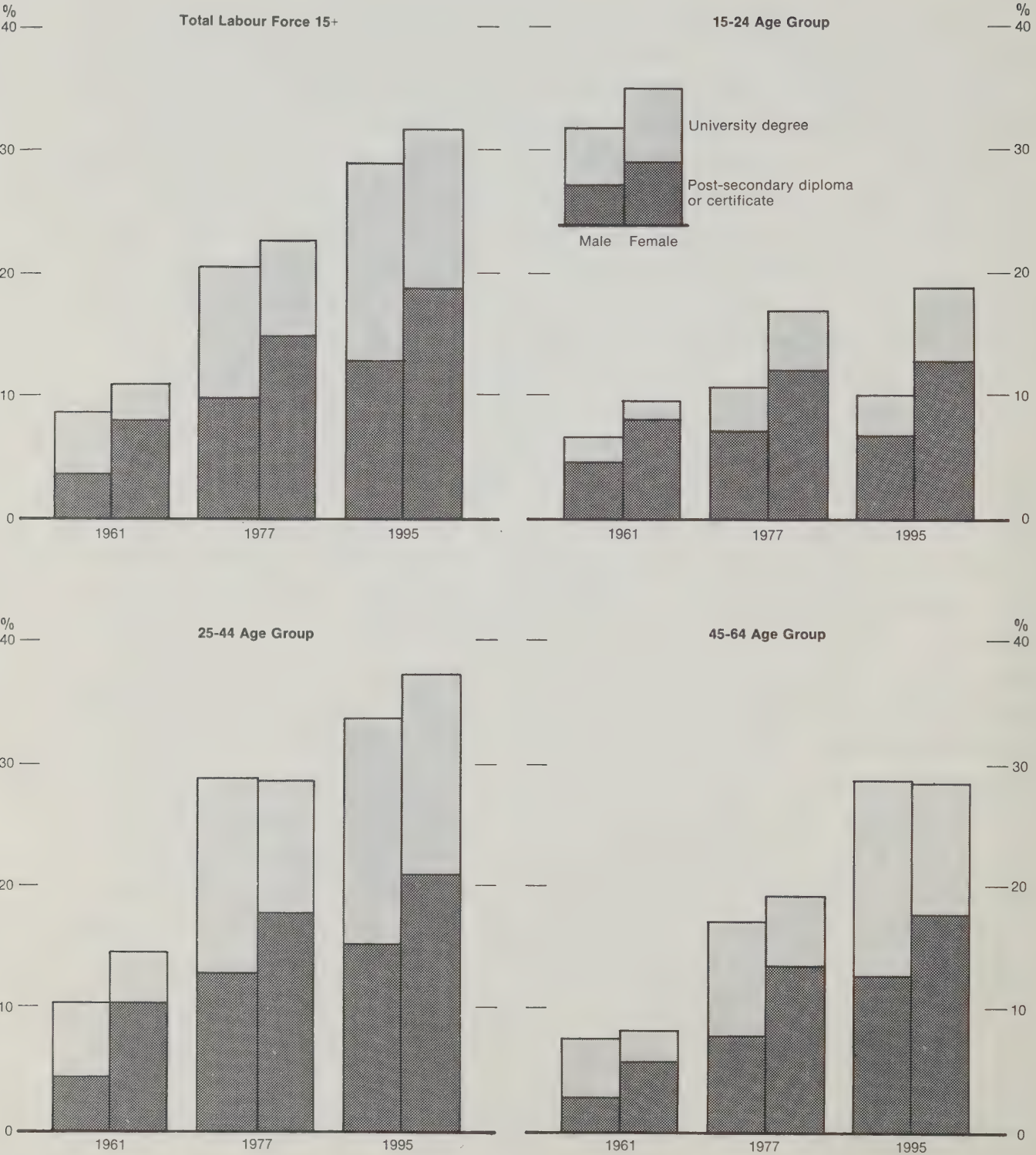
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<sup>1</sup>Gordon W. Bertram, The Contribution of Education to Economic Growth (Ottawa, 1966), 62.

<sup>2</sup>Zsigmond et al., Out of School, 153-156.

Chart — 10

Percent of the Labour Force with Post-secondary Graduation,  
by Sex and Age Group, 1961\*, 1977 and 1995



\* Values for 1961 are estimates.



As well, government hiring has slackened, and no change is foreseen in the immediate future. This employment slowdown in the public sector, just when the number of job-seekers is high, may result in continued labour market difficulties for some of the well-educated, particularly those with arts or general degrees. It has been estimated that these tight labour market conditions have primarily affected approximately one-third of the graduates from Canadian colleges and universities in the late 1970s.<sup>1</sup> (As mentioned, some graduates can almost write their own ticket - e.g., technicians, technologists, engineers, science graduates in energy-related fields, computer scientists, and others with job-oriented training).

For many, the difficulty may be more in the type of job they can secure, rather than actually finding employment. The unemployment rate among post-secondary graduates, while high, remains below that of other young people.<sup>2</sup> Underemployment of some young highly educated may be the most significant consequence of the tight labour market for recent graduates.

However, analysts in both Canada and the United States expect some improvement in the labour market for young post-secondary graduates by the mid- to late 1980s. In The Over-Educated American, economist Richard B. Freeman predicts that demand for new bachelor's degree graduates in the U.S. will be on the upswing at the end of the eighties, but will not match the boom of the sixties. He suggests that the supply of graduates will continue to grow into the 1990s so as to reduce their economic rewards.<sup>3</sup> Similarly in Canada, when the number of post-secondary graduates seeking jobs begins to fall in the mid-1980s, opportunities may improve.

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<sup>1</sup>Picot, W.G., "Post-secondary Graduates and the Labour Market in Canada". (Paper presented to the Association of Institutional Researchers, San Diego, Ca., May, 1979).

<sup>2</sup>The average annual unemployment rates among 15-24-year-olds in 1978 were: university degree - 8.6%; post-secondary certificate or diploma - 9.1%; "some" post-secondary - 11.5%; secondary school - 15.4% and elementary - 24.1%. Source: Labour Force Annual Averages 1975-78, Catalogue 71-529, occasional (Ottawa: Statistics Canada, 1979).

<sup>3</sup>Richard Barry Freeman, The Over-Educated American (New York, 1976).

The current pinch is forcing a re-evaluation of the *raison d'être* of higher education. The major adjustment will have to be made by students who now must consider their motives for enrolling and assess the potential rewards much more realistically. It can no longer be assumed that any degree whatsoever will provide an advantage in the labour market. There are, of course, reasons for acquiring a post-secondary education other than achieving employment. Attitudes toward education and work are likely slowly changing. The new labour market conditions may result in more students adopting the view that people are educated not only for work, but also for other intellectual pursuits, including leisure time activities.

But the recent, and hopefully short-term, employment problem for some graduates is only one of many consequences of the rapidly increasing educational level of the work force. In the final analysis, other effects may be far more consequential, and hopefully beneficial, than the supply/demand mismatch just discussed. In an article in the Scientific American,<sup>1</sup> it was suggested that the influx of highly educated personnel into the labour force has had society-wide ramifications:

- a shrinking percentage of blue collar workers;
- rapidly rising GNP since WWII;
- the flowering of new industries built on the technologies of solid-state electronics and information processing;
- transformation of family-owned businesses into corporate conglomerates under multilayered middle management administration, and
- growth in the government sector.

The author also notes the influence and change that highly educated professionals and middle managers have brought to government and industry. He suggests that professionals, such as government officials, professors, journalists, health administrators, systems analysts, etc. tend to act more independently than earlier generations. They do not necessarily share the goals of the organization to which they belong, nor do they see themselves

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<sup>1</sup>Ginzberg, Eli, The Professionalization of the U.S. Labour Force; Scientific American, March, 1979.

as minions of their employers. Many of them, educated for six or seven years beyond high school, have had time to learn to think critically, and do not automatically accept the values, goals and patterns of behaviour of the society around them or of the organizations they join.

If Ginzberg's evaluation is correct, management systems and styles may have to change as a larger proportion of the work force acquires high levels of education and the above-mentioned characteristics and attitudes.

Increased education and training, of course, contribute directly to technological advancements. As well, a better-educated labour force is capable of and willing to make use of such innovations, and it is to be hoped, evaluate them. Perhaps one of the major obstacles to the implementation of a new tool, technique or idea is the inability or reluctance of workers to learn how to use it. More highly educated people, however, having acquired the habit of learning, are probably more adaptable to change, and can at the same time contribute to it. The habit of inquiry and the capacity to understand complex issues that education is intended to foster, should facilitate successful technological and social change in the future, including the evaluation of such change.

As earlier suggested, part of that change may be an altered, as well as increased, perspective on some types of higher education as education for leisure rather than, or as well as, education for work.





## SECTION VI

### POTENTIAL EFFECTS OF INCREASED EDUCATION ON SOME LEISURE ACTIVITIES

The following is an attempt to demonstrate the importance of increased education on the opposite of people at work — people at play. Specifically, the relationship between education, age, and leisure activities is explored.

Leisure time is attracting more public and government attention. Departments like the Secretary of State and Health and Welfare formulate policies that affect financial support. Consideration in such decisions should be given to the extent of participation in various activities, and the characteristics of people who do so. These characteristics may suggest which leisure activities are likely to increase or decrease in popularity in the near future, thereby helping policy-makers determine if their funding structure is appropriate. As well, this information is valuable to the private sector, for it indicates anticipated changes in the educational and age profile of consumers and audiences.

It was demonstrated earlier that age and education are correlated — younger people are more highly educated. Because of this, it is possible that what appears to be the effect of education on, say, increasing attendance at some leisure time activity, is actually an effect of age, or vice versa. Hence, their joint influence must be examined. The core of the analysis, then, is a matrix of rates of participation in leisure activities by both age and education.<sup>1</sup>

This is not an all-encompassing analysis of expected changes in leisure pursuits. Rather, it is an attempt to assess the potential influence of three population processes: (1) growth, (2) increasing educational attainment, and (3) the changing age profile. It is important to remember that only the population 15 and over is covered here.

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<sup>1</sup>For the sake of simplicity, charts in the text show the relationship between leisure time activities and age, and leisure activities and education separately. However, in all analyses these effects are considered simultaneously.

The matrices of participation rates in eight leisure activities are provided by education and age in Appendix IV.

This is not to suggest that age and education are the only, or indeed even the major, factors that influence participation in leisure activities. Changing family formation trends, increased free time, income, and vigorous promotion (viz., the recent "Participaction" campaign) could alter the general pattern of leisure.

A survey conducted by the Culture Subdivision of Statistics Canada in February 1978 asked approximately 20,000 Canadians two questions about their leisure. First, "How many hours did you spend last week on the following activities?" Thirteen activities were listed, three of which were reading, television viewing, and sports or physical exercise. Second, "How many times since January 1, 1978 (i.e., during the past seven weeks) have you visited or attended any of the following?" Eleven possibilities were given including museums, libraries, movies, and sports events.

Chart 11 demonstrates the relationship between education and some of these activities. Hours reading books, newspapers<sup>1</sup> or magazines increase with education, while television viewing declines dramatically. Participation in sports or physical exercise does not seem to be related to education. The tendency to attend all the activities shown in Chart 11 increases with education, whether it be visiting museums, art galleries, libraries, or attending films, live theatre, opera, dance and classical music performances. With the educational attainment of the population increasing rapidly, and projected to continue to do so, these relationships are useful in ascertaining the potential audience.

Age is also an important determinant of many activities. Table 11 shows the "rate of participation" in various activities for six age groups, ranging from 15-24 to 65+. Films, sports events and libraries are patronized much more frequently by the young than the old. For example, during the first seven weeks of 1978, 15-24-year-olds attended films an average of 1.9 times each, compared with 0.7 times for 35-44-year-olds, and 0.2 times for those over 65. The projected decline in the 15-24 age group in the 1980s, and the

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<sup>1</sup>Newspaper readership was studied in more detail by Yvon Ferland, Assistant Director of the Culture Subdivision of Statistics Canada. In "The Canadian and his Newspaper", he noted that the more education people have, the more they read newspapers. As well, they have a broader interest in the news, and read more sections. Newspaper reading was also found to increase with age.

Participation by the Population 15 Years and Older in Some Leisure Time Activities, by Educational Level, February 1978

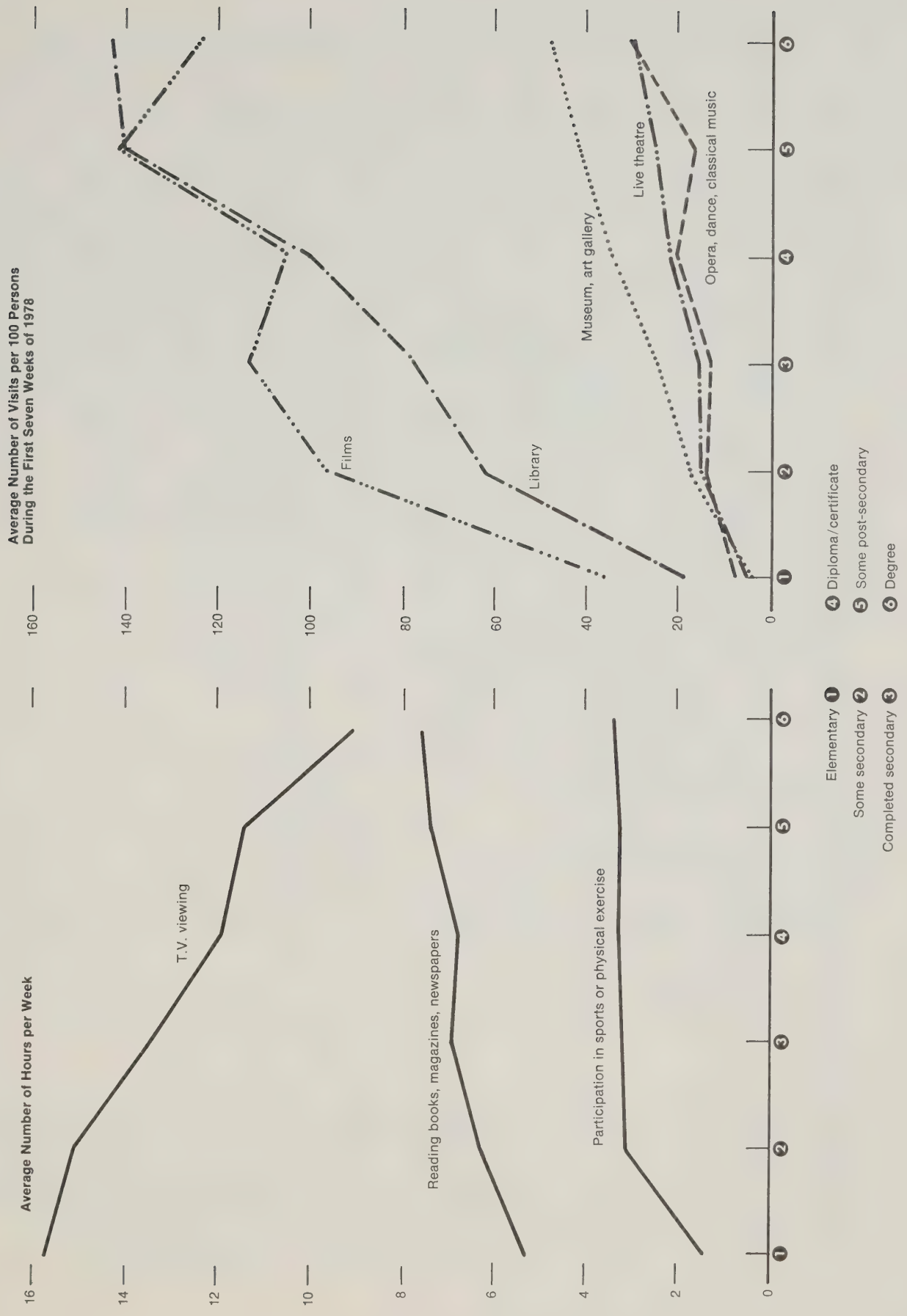


TABLE 11. Leisure Participation, by Education, Age and Types of Activity, Population 15+, February 1978

	Education			Age group								
	Elementary	Some secondary	Completed secondary	Some post-secondary	Diploma/certificate	Degree	15-24	25-34	35-44	45-54	55-64	65+
	Average number of hours per week											
TV viewing	15.7	15.1	13.5	11.4	11.9	9.1	13.4	13.4	12.6	13.2	15.3	15.9
Reading books, magazines, newspapers	5.3	6.3	6.9	7.4	6.8	7.6	5.6	5.8	6.2	6.5	8.3	8.0
Reading newspapers	3.8	4.0	4.2	4.3	4.3	4.3	2.9	3.5	4.2	4.8	5.7	5.4
Sports or physical exercise	1.4	3.1	3.1	3.1	3.2	3.3	4.4	2.9	2.2	2.0	1.7	1.2
	Average number of visits per 100 persons during first 6 weeks of 1978											
Films	36	96	114	141	106	125	192	100	69	41	24	16
Libraries	19	63	78	141	102	144	114	68	78	51	42	48
Museums/art galleries	5	17	25	42	34	48	26	25	21	26	17	16
Opera, dance, classical music	8	14	14	17	21	31	21	12	15	16	13	9
Sports events	69	134	116	124	101	74	167	98	127	88	48	29

Note: These participation rates reflect the situation during January and February, the coldest months of the Canadian winter. This may bias the results in favour of indoor activities.

Source: 1978 Leisure Time Activity Survey.



"aging" of the population could have a significant effect on the demand for these activities.<sup>1</sup>

Chart 12 displays an estimate of the distribution of participation among various activities during 1977 by the age and education of participants. For example, it shows that 51% of all visits to museums or art galleries were made by persons with post-secondary education, although people with this level of attainment comprised only 26% of the population.

Since not only the number, but also the age and education of patrons of various leisure activities will shift, these changes, too, might affect demand. A matrix of "participation rates" derived from the 1978 survey<sup>2</sup> was used to estimate the simultaneous impact of age and education on the use of leisure time (Appendix IV). It consists of six age groups and six education levels. The number in any single cell would indicate, for example, the rate of movie-going by 25-34-year-olds with secondary graduation.

This matrix was applied to the projected population 15 and over in various years. Changes in attendance patterns for any given activity demonstrate the impact of (1) greater educational attainment, (2) shifts in age distribution, and (3) population growth. Since the "participation rates" were held constant, this technique does not allow for variations in the popularity of any activity due to other factors. For example, a major shift in audience characteristics might prompt the purveyors of a particular activity to tailor its content to appeal to the new majority. This would alter the age/education participation rates which have been assumed constant here.

Nonetheless, assuming constant participation rates, Chart 13 shows that book reading and attendance at museums, art galleries, libraries, and live theatre would increase more quickly than the population, primarily because persons with higher levels of education, who attend those functions more often are the fastest growing segment of the population. On the other hand,

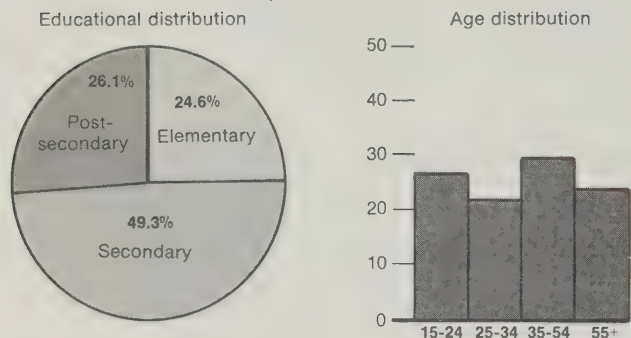
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<sup>1</sup>See also, Yvon Ferland and Audrey Voitkus, "Cinema Attendance, Habits in Canada," Canadian Statistical Review, 53 (May, 1978), vi-xiv.

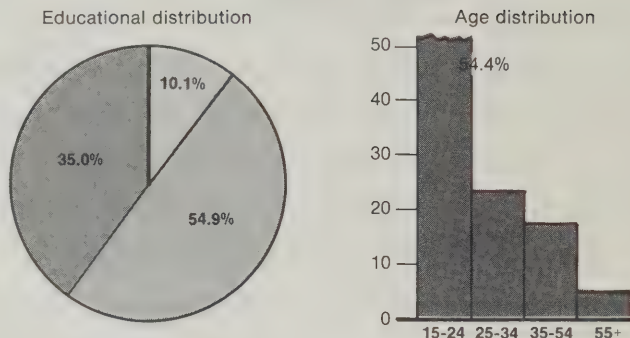
<sup>2</sup>Since these measures pertain to January and February, they may change in other months; hence, no absolute measure of participation in the activities for any given year is calculated. However, these rates, combined with the population by age and education, do allow distributions to be calculated.

**Estimated Percent Distribution of Participation in Leisure Activities, by Age and Educational Attainment of Participants, 1977**

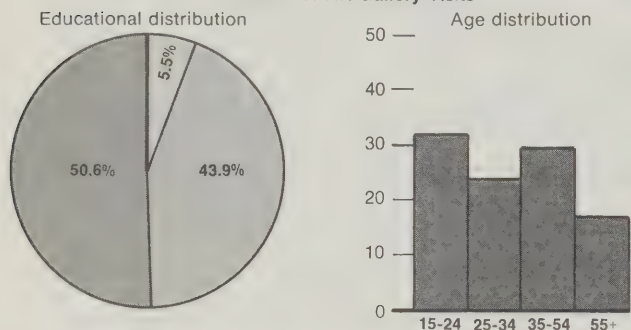
**Population 15 and Over**



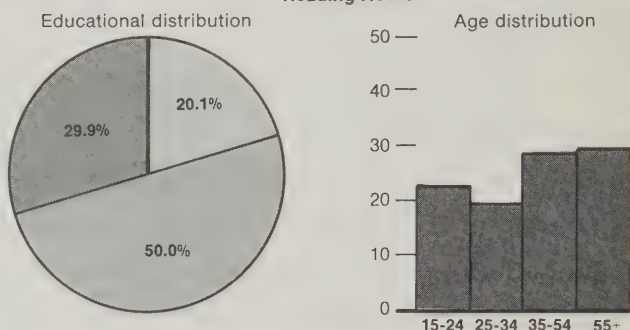
**Attendance at Films**



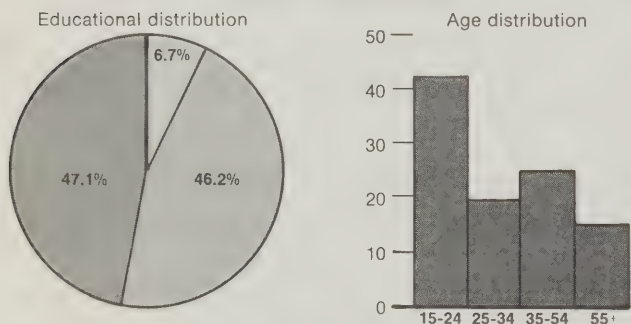
**Museum or Art Gallery Visits**



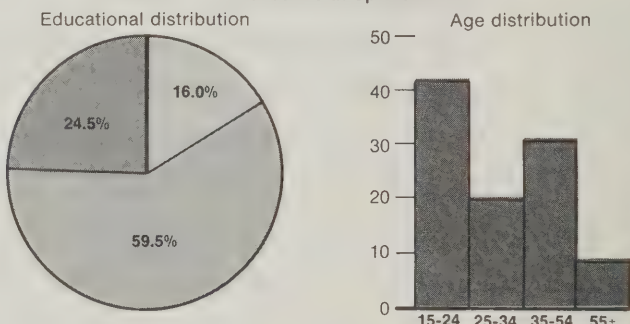
**Reading Hours**



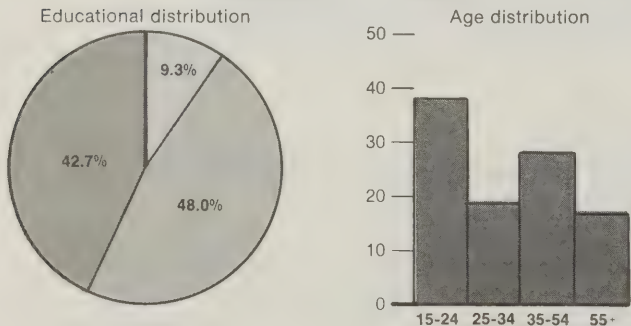
**Visits to Public Libraries**



**Attendance at Sports Events**



**Attendance at Live Theatre**



**T.V. Viewing Hours**

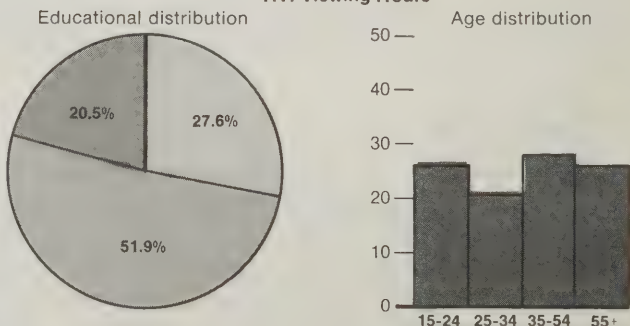
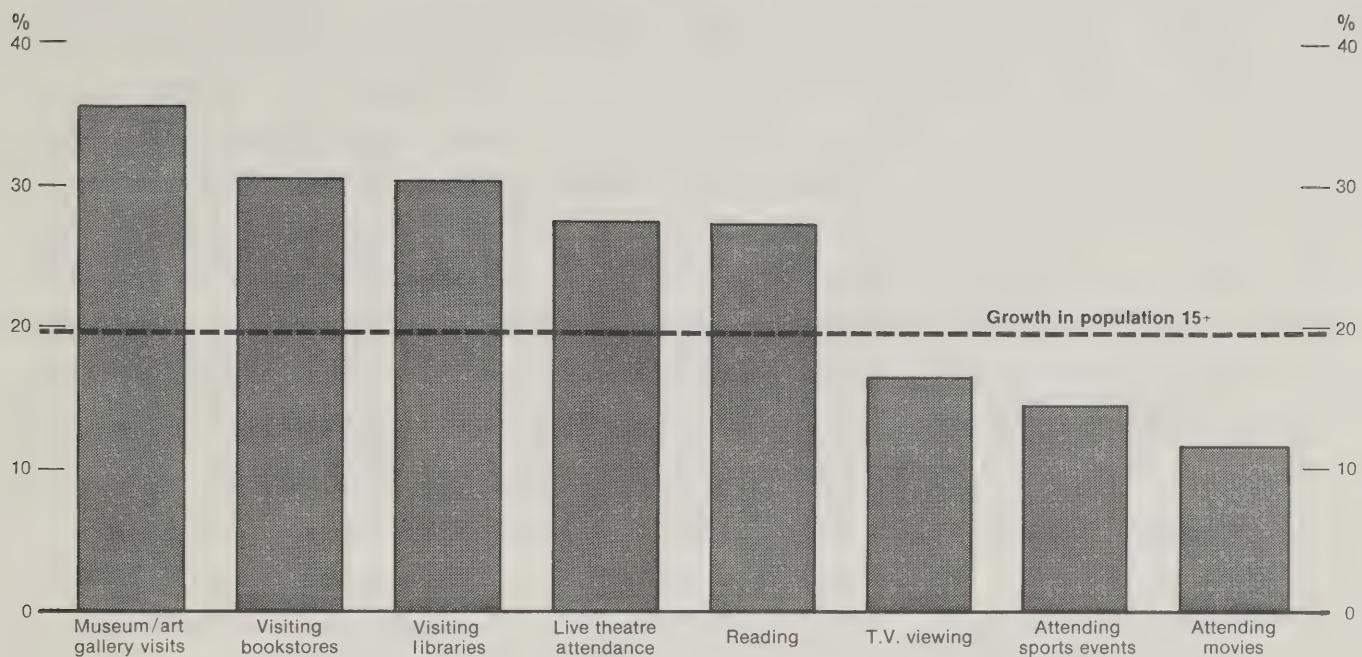


Chart — 13

**Percent Increase in Some Leisure Time Activities between 1977 and 1990 \***



\* Due ONLY to the growth, increasing educational attainment, and changing age distribution of the population.



television viewing and attendance at sports events and films would lag behind population growth. The latter two are patronized disproportionately by the young.

However, in almost all cases the population changes that tend to produce a rapid rate of growth in participation in these events were more prevalent between 1971 and 1977 than they will be in the future. For example, under the assumption of constant age/education participation rates, annual growth rates in various activities are computed for 1961 to 2000 in Table 12.

These are of course, neither true historical nor predicted rates of growth. They indicate that the potential for growth in leisure activities due to growth and change in the population was greatest during the 1971-77 period, and declines as the century progresses. The effect of increasing educational attainment is offset by a slowed overall population growth, and a decline in the number of young people.

TABLE 12. Average Annual Growth of Some Leisure Activities if "Participation Rates" by Age\* and Education Remain at the 1978 Level

Years	Popula- tion 15 and over	Time spent on:		Attendance at:				
		Reading	TV watching	Museums & Art Galleries	Libraries	Films	Sports events	Live theatre
1961-71	2.3%	2.8%	2.2%	4.1%	4.0%	3.6%	2.6%	3.6%
1971-77	2.3	3.0	1.9	4.9	4.6	3.3	2.2	4.0
1977-85	1.6	2.1	1.4	2.6	2.4	1.3	1.3	2.1
1985-90	1.1	1.6	0.9	2.0	1.6	0.2	0.7	1.5
1990- 2000	1.0	1.4	0.8	1.9	1.6	0.6	0.9	1.7

\*Includes only population 15 and over

In summary, the increasing educational attainment of the population could mean above average growth for leisure activities that are more heavily frequented or chosen by educated persons. The changing age structure of the population could slow the growth of activities popular primarily among young people, and accelerate growth of those undertaken by middle-aged or older persons. Naturally, other



developments like an increase in total leisure time, changes in marketing techniques, program offerings, availability, etc. could influence the growth rate. It is certain, however, that future leisure participants will be more highly educated and older (i.e., more likely to be in the mid-age groups, 30-45) than was the case in the 1960s and 1970s.

### Concluding Remarks

The last two sections are not a definitive analysis of either current labour market issues or leisure activities. They are not the focus of this report, but are presented only to demonstrate the impact of increasing educational attainment, and to stimulate thought and discussion.

There are numerous other ways in which education will influence Canada's economic, social and political life. Many are "commonsense", but they can also be far-reaching. For example, in The Enduring Effects of Education, Hyman, Wright and Reed<sup>1</sup> set out to ascertain the extent to which education affects knowledge of public affairs (politics, government, culture, etc.). Their basic finding was that "the better educated do have a wider and deeper knowledge not merely of bookish facts but also of the contemporary world, and they are more likely to seek out knowledge and be attuned to sources of information".

The statistics presented in the main body of this paper suggest that the changing educational level could alter habits of inquiry. The authors of The Enduring Effects of Education noted that it is difficult to determine the extent to which each level of education reinforces these propensities. They suggest, however, that the difference between a high school and college graduate is that the latter is more likely to be informed in areas where the knowledge

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<sup>1</sup>Herbert H. Hyman, Charles R. Wright, and John Shelton Reed, The Enduring Effects of Education (Chicago, Illinois, 1975). The study examined data from 54 surveys conducted during 1949-71. The surveys were chosen over a long period so that patterns could be traced. Emphasis was on the effect of education on knowledge and information-seeking, and the degree to which noticeable effects lasted throughout a person's lifetime. "Knowledge" was measured by the percentage of each group informed about the items examined in the surveys.

is specialized or difficult. However, high school "makes a very large difference and is quite effective for a great variety of subjects of knowledge and behaviours". To this end it can be noted that there has been and will be a dramatic decline in the proportion of the population without at least some secondary education. In 1961, 44% of the population had not gone beyond the eighth grade. By 1977 this had fallen to 25%, and is projected to continue falling to 12% by the end of the century. At the other end of the scale, in 1961, one in fifteen people had graduated from college or university; by 1977 it was one in six, and by 1995 will be one in four. If the findings of Hyman, Wright and Reed are valid, then the rapidly increasing educational attainment of the population means more adults are likely to exploit communications opportunities to obtain knowledge of political, social and economic events, especially as the highly educated "baby boom" generation advances into their thirties in the 1980s and forties in the 1990s. The mass media may become even more important in imparting such information, and influential in the resolution of complex issues.

APPENDIX I

## HISTORICAL AND PROJECTED POPULATION AND LABOUR FORCE DATA

## The Educational Attainment of

- |                                 |                |
|---------------------------------|----------------|
| (1) The Population, 1961–2000   | pages 68 to 75 |
| (2) The Labour Force, 1977–2000 | pages 76 to 78 |

Note: The educational attainment of the population in 1961 and 1971 is based on Census data for those years. The educational categories used in the Census questionnaire changed between 1961 and 1971. Furthermore, the source of the 1977 data is the Labour Force Survey, which also employs definitions which differ from both the 1961 and 1971 Census. Hence, the 1961 and 1971 Census data were adjusted slightly to account for differences in educational category definitions, and hence, to provide as consistent a time-series as possible. The unadjusted census data are given in Appendix III, along with a further discussion of data problems.

TABLE I-1. EDUCATIONAL ATTAINMENT OF THE POPULATION, BY AGE GROUP, CANADA

YEAR 1961		NUMBER IN THOUSANDS						
HISTORICAL								
SEX AND AGE GROUP	ELEMENTARY	-----SECONDARY-----		-----POST-SECONDARY-----			ALL LEVELS	
	SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE	SUB-TOTAL		
MALE								
15-24	400	571	176	108	44	18	170	1,316
25-34	501	407	151	74	56	69	199	1,258
35-44	527	356	134	61	43	70	174	1,191
45-54	504	247	96	41	26	44	112	958
55-64	424	124	47	24	11	25	60	655
65 & OVER	486	101	43	18	7	18	43	674
15 & OVER	2,843	1,805	647	327	187	243	758	6,053
FEMALE								
15-24	315	599	226	79	70	12	161	1,300
25-34	418	440	191	65	81	28	174	1,223
35-44	481	392	183	51	68	24	142	1,199
45-54	435	273	107	39	47	19	105	920
55-64	369	151	64	23	19	10	52	635
65 & OVER	466	144	66	19	15	7	41	717
15 & OVER	2,484	1,999	836	275	299	100	674	5,993
BOTH SEXES								
15-24	715	1,170	401	187	114	30	331	2,616
25-34	919	848	342	139	137	97	373	2,481
35-44	1,008	748	317	112	111	94	316	2,390
45-54	939	520	203	80	73	63	217	1,878
55-64	793	274	111	47	30	34	111	1,290
65 & OVER	952	245	110	37	22	25	84	1,391
15 & OVER	5,326	3,805	1,483	603	486	343	1,432	12,046

## | PERCENTAGE DISTRIBUTION |

SEX AND AGE GROUP	ELEMENTARY	-----SECONDARY-----		-----POST-SECONDARY-----			ALL LEVELS	
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE		SUB-TOTAL
MALE								
15-24	30.4	43.4	13.3	8.2	3.4	1.3	12.9	100.0
25-34	39.8	32.4	12.0	5.9	4.5	5.5	15.8	100.0
35-44	44.3	29.9	11.3	5.1	3.6	5.9	14.6	100.0
45-54	52.6	25.7	10.0	4.3	2.7	4.6	11.7	100.0
55-64	64.8	18.9	7.2	3.7	1.6	3.8	9.1	100.0
65 & OVER	72.2	15.0	6.4	2.7	1.0	2.7	6.4	100.0
15 & OVER	47.0	29.8	10.7	5.4	3.1	4.0	12.5	100.0
FEMALE								
15-24	24.2	46.0	17.4	6.1	5.4	0.9	12.4	100.0
25-34	34.2	36.0	15.6	5.3	6.6	2.3	14.2	100.0
35-44	40.1	32.7	15.3	4.2	5.7	2.0	11.9	100.0
45-54	47.3	29.7	11.6	4.2	5.1	2.1	11.4	100.0
55-64	58.1	23.8	10.0	3.6	3.0	1.5	8.1	100.0
65 & OVER	65.0	20.1	9.2	2.7	2.1	0.9	5.7	100.0
15 & OVER	41.4	33.4	14.0	4.6	5.0	1.7	11.2	100.0
BOTH SEXES								
15-24	27.3	44.7	15.3	7.1	4.4	1.1	12.6	100.0
25-34	37.0	34.2	13.8	5.6	5.5	3.9	15.0	100.0
35-44	42.2	31.3	13.3	4.7	4.6	3.9	13.2	100.0
45-54	50.0	27.7	10.8	4.3	3.9	3.4	11.5	100.0
55-64	61.5	21.3	8.6	3.7	2.3	2.7	8.6	100.0
65 & OVER	68.5	17.6	7.9	2.7	1.6	1.8	6.0	100.0
15 & OVER	44.2	31.6	12.3	5.0	4.0	2.8	11.9	100.0



## EDUCATIONAL ATTAINMENT OF THE POPULATION, BY AGE GROUP, CANADA

| YEAR 1971 |

| HISTORICAL |

| NUMBER IN THOUSANDS |

		ELEMENTARY		SECONDARY		POST-SECONDARY			ALL LEVELS
SEX AND AGE GROUP		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE	SUB-TOTAL		
MALE									
15-24	285	1,005	286	233	135	72	440	2,016	
25-34	355	523	171	154	102	157	413	1,462	
35-44	489	423	112	99	60	103	262	1,286	
45-54	508	345	92	73	41	73	187	1,132	
55-64	455	222	64	48	24	41	113	854	
65 & OVER	530	134	56	27	11	24	63	782	
15 & OVER	2,621	2,652	781	633	374	470	1,477	7,532	
FEMALE									
15-24	234	982	355	181	180	56	417	1,987	
25-34	322	565	209	122	139	70	332	1,428	
35-44	431	470	144	76	82	38	196	1,241	
45-54	472	402	127	63	66	29	158	1,159	
55-64	429	267	80	41	44	17	101	878	
65 & OVER	578	221	95	29	28	11	69	963	
15 & OVER	2,466	2,908	1,010	512	540	220	1,272	7,655	
BOTH SEXES									
15-24	519	1,987	641	413	315	128	856	4,004	
25-34	677	1,088	380	276	241	228	744	2,890	
35-44	920	893	256	175	143	141	458	2,526	
45-54	980	748	219	136	108	101	345	2,292	
55-64	884	489	145	89	68	57	214	1,732	
65 & OVER	1,108	355	151	56	40	35	131	1,745	
15 & OVER	5,087	5,560	1,791	1,145	914	690	2,749	15,188	

## | PERCENTAGE DISTRIBUTION |

SEX AND AGE GROUP	ELEMENTARY	SECONDARY		POST-SECONDARY			ALL LEVELS	
	SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE	SUB-TOTAL		
MALE								
15-24	14.2	49.8	14.2	11.5	6.7	3.6	21.8	100.0
25-34	24.3	35.8	11.7	10.5	7.0	10.8	28.3	100.0
35-44	38.0	32.9	8.7	7.7	4.7	8.0	20.4	100.0
45-54	44.8	30.5	8.2	6.4	3.6	6.4	16.5	100.0
55-64	53.2	26.0	7.5	5.6	2.9	4.7	13.2	100.0
65 & OVER	67.7	17.2	7.2	3.5	1.5	3.1	8.0	100.0
15 & OVER	34.8	35.2	10.4	8.4	5.0	6.2	19.6	100.0
FEMALE								
15-24	11.8	49.4	17.8	9.1	9.1	2.8	21.0	100.0
25-34	22.5	39.6	14.6	8.6	9.7	4.9	23.2	100.0
35-44	34.7	37.9	11.6	6.1	6.6	3.0	15.8	100.0
45-54	40.7	34.7	10.9	5.5	5.7	2.5	13.7	100.0
55-64	48.9	30.4	9.2	4.6	5.0	1.9	11.5	100.0
65 & OVER	60.1	22.9	9.9	3.0	2.9	1.2	7.1	100.0
15 & OVER	32.2	38.0	13.2	6.7	7.1	2.9	16.6	100.0
BOTH SEXES								
15-24	13.0	49.6	16.0	10.3	7.9	3.2	21.4	100.0
25-34	23.4	37.7	13.2	9.6	8.3	7.9	25.8	100.0
35-44	36.4	35.4	10.1	6.9	5.7	5.6	18.1	100.0
45-54	42.8	32.6	9.6	5.9	4.7	4.4	15.1	100.0
55-64	51.0	28.3	8.4	5.1	3.9	3.3	12.3	100.0
65 & OVER	63.5	20.3	8.6	3.2	2.3	2.0	7.5	100.0
15 & OVER	33.5	36.6	11.8	7.5	6.0	4.5	18.1	100.0

## EDUCATIONAL ATTAINMENT OF THE POPULATION, BY AGE GROUP, CANADA

| YEAR 1977 |

| HISTORICAL |

| NUMBER IN THOUSANDS |

SEX AND AGE GROUP	ELEMENTARY	SECONDARY		POST-SECONDARY			ALL LEVELS	
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE		SUB-TOTAL
MALE								
15-24	192	1,209	358	342	139	69	549	2,308
25-34	227	578	263	228	260	328	816	1,883
35-44	348	439	119	101	143	184	428	1,334
45-54	454	399	97	78	94	110	281	1,230
55-64	418	281	66	51	63	70	184	949
65 & OVER	533	211	37	36	37	45	118	898
15 & OVER	2,170	3,116	941	836	734	806	2,375	8,602
FEMALE								
15-24	147	1,099	436	307	192	74	573	2,254
25-34	222	624	334	179	307	195	681	1,861
35-44	313	501	153	87	165	82	335	1,302
45-54	407	459	129	71	126	52	249	1,243
55-64	412	352	88	45	93	36	174	1,026
65 & OVER	621	316	58	44	99	27	170	1,164
15 & OVER	2,121	3,351	1,198	733	982	467	2,181	8,851
BOTH SEXES								
15-24	338	2,308	794	648	330	144	1,122	4,562
25-34	448	1,202	597	407	567	523	1,497	3,744
35-44	661	940	272	189	308	266	763	2,636
45-54	860	857	227	148	219	162	529	2,473
55-64	830	633	154	96	156	106	358	1,975
65 & OVER	1,153	526	95	80	136	72	288	2,062
15 & OVER	4,291	6,467	2,139	1,568	1,716	1,272	4,556	17,453

| PERCENTAGE DISTRIBUTION |

SEX AND AGE GROUP	ELEMENTARY	SECONDARY		POST-SECONDARY			ALL LEVELS	
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE		SUB-TOTAL
MALE								
15-24	8.3	52.4	15.5	14.8	6.0	3.0	23.8	100.0
25-34	12.0	30.7	14.0	12.1	13.8	17.4	43.3	100.0
35-44	26.1	32.9	8.9	7.6	10.7	13.8	32.1	100.0
45-54	36.9	32.4	7.9	6.3	7.6	8.9	22.8	100.0
55-64	44.0	29.6	7.0	5.4	6.6	7.4	19.4	100.0
65 & OVER	59.3	23.5	4.1	4.0	4.1	5.0	13.1	100.0
15 & OVER	25.2	36.2	10.9	9.7	8.5	9.4	27.6	100.0
FEMALE								
15-24	6.5	48.8	19.3	13.6	8.5	3.3	25.4	100.0
25-34	11.9	33.6	17.9	9.6	16.5	10.5	36.6	100.0
35-44	24.1	38.5	11.8	6.7	12.7	6.3	25.7	100.0
45-54	32.7	36.9	10.4	5.7	10.1	4.2	20.0	100.0
55-64	40.2	34.3	8.5	4.4	9.1	3.5	17.0	100.0
65 & OVER	53.3	27.1	5.0	3.8	8.5	2.3	14.6	100.0
15 & OVER	24.0	37.9	13.5	8.3	11.1	5.3	24.6	100.0
BOTH SEXES								
15-24	7.4	50.6	17.4	14.2	7.2	3.1	24.6	100.0
25-34	12.0	32.1	15.9	10.9	15.1	14.0	40.0	100.0
35-44	25.1	35.6	10.3	7.2	11.7	10.1	28.9	100.0
45-54	34.8	34.7	9.2	6.0	8.9	6.5	21.4	100.0
55-64	42.0	32.1	7.8	4.9	7.9	5.4	18.1	100.0
65 & OVER	55.9	25.5	4.6	3.9	6.6	3.5	13.9	100.0
15 & OVER	24.6	37.1	12.3	9.0	9.8	7.3	26.1	100.0

## EDUCATIONAL ATTAINMENT OF THE POPULATION, BY AGE GROUP, CANADA

| YEAR 1980 |

| PROJECTED |

| NUMBER IN THOUSANDS |

SEX AND AGE GROUP	ELEMENTARY		SECONDARY		POST-SECONDARY			ALL LEVELS
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE	SUB-TOTAL	
MALE								
15-24	191	1,265	382	339	150	67	556	2,395
25-34	201	611	310	266	297	370	933	2,056
35-44	305	472	151	129	171	220	520	1,448
45-54	421	405	101	81	105	126	312	1,239
55-64	414	306	74	58	69	77	204	997
65 & OVER	532	248	46	42	45	55	142	968
15 & OVER	2,063	3,308	1,063	915	837	915	2,667	9,101
FEMALE								
15-24	144	1,105	450	312	220	81	613	2,312
25-34	190	624	392	237	358	243	839	2,044
35-44	284	533	190	106	195	106	407	1,414
45-54	375	464	134	72	132	59	263	1,236
55-64	416	388	100	52	102	41	195	1,098
65 & OVER	638	375	73	52	114	32	198	1,283
15 & OVER	2,047	3,489	1,338	831	1,121	562	2,514	9,388
BOTH SEXES								
15-24	335	2,371	832	651	370	148	1,169	4,706
25-34	391	1,235	702	503	655	613	1,772	4,100
35-44	590	1,006	340	235	366	326	927	2,862
45-54	796	869	235	154	237	185	576	2,475
55-64	829	694	173	110	171	118	399	2,095
65 & OVER	1,170	623	119	94	159	87	340	2,251
15 & OVER	4,110	6,797	2,401	1,746	1,958	1,477	5,181	18,489

## | PERCENTAGE DISTRIBUTION |

SEX AND AGE GROUP	ELEMENTARY	SECONDARY		POST-SECONDARY			ALL LEVELS	
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE		SUB-TOTAL
MALE								
15-24	8.0	52.8	16.0	14.1	6.3	2.8	23.2	100.0
25-34	9.8	29.7	15.1	12.9	14.5	18.0	45.4	100.0
35-44	21.1	32.6	10.4	8.9	11.8	15.2	35.9	100.0
45-54	34.0	32.7	8.1	6.6	8.5	10.2	25.2	100.0
55-64	41.5	30.7	7.4	5.8	6.9	7.8	20.5	100.0
65 & OVER	54.9	25.7	4.7	4.4	4.7	5.6	14.7	100.0
15 & OVER	22.7	36.3	11.7	10.1	9.2	10.1	29.3	100.0
FEMALE								
15-24	6.2	47.8	19.4	13.5	9.5	3.5	26.5	100.0
25-34	9.3	30.5	19.2	11.6	17.5	11.9	41.0	100.0
35-44	20.1	37.7	13.4	7.5	13.8	7.5	28.8	100.0
45-54	30.3	37.5	10.8	5.9	10.7	4.7	21.3	100.0
55-64	37.8	35.4	9.1	4.7	9.3	3.7	17.7	100.0
65 & OVER	49.7	29.2	5.7	4.0	8.9	2.5	15.4	100.0
15 & OVER	21.8	37.2	14.2	8.9	11.9	6.0	26.8	100.0
BOTH SEXES								
15-24	7.1	50.4	17.7	13.8	7.9	3.1	24.8	100.0
25-34	9.5	30.1	17.1	12.3	16.0	15.0	43.2	100.0
35-44	20.6	35.1	11.9	8.2	12.8	11.4	32.4	100.0
45-54	32.1	35.1	9.5	6.2	9.6	7.5	23.3	100.0
55-64	39.6	33.1	8.3	5.3	8.1	5.6	19.0	100.0
65 & OVER	52.0	27.7	5.3	4.2	7.1	3.9	15.1	100.0
15 & OVER	22.2	36.8	13.0	9.4	10.6	8.0	28.0	100.0

## EDUCATIONAL ATTAINMENT OF THE POPULATION, BY AGE GROUP, CANADA

| YEAR 1985 |

| PROJECTED |

| NUMBER IN THOUSANDS |

SEX AND AGE GROUP	ELEMENTARY	SECONDARY		POST-SECONDARY			ALL LEVELS	
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE		SUB-TOTAL
MALE								
15-24	168	1,188	350	316	144	70	531	2,236
25-34	180	666	382	311	343	422	1,075	2,304
35-44	250	564	232	197	237	302	736	1,782
45-54	353	411	111	92	128	159	378	1,253
55-64	408	345	85	70	81	93	245	1,083
65 & OVER	515	306	61	53	59	70	182	1,064
15 & OVER	1,874	3,479	1,221	1,038	993	1,116	3,147	9,721
FEMALE								
15-24	128	1,014	409	298	214	88	600	2,151
25-34	153	605	473	313	420	304	1,038	2,268
35-44	247	615	284	161	273	169	603	1,749
45-54	321	473	149	78	151	75	304	1,247
55-64	408	436	119	63	115	49	228	1,191
65 & OVER	657	475	99	65	138	42	245	1,476
15 & OVER	1,914	3,618	1,532	978	1,311	729	3,017	10,081
BOTH SEXES								
15-24	296	2,202	759	614	359	158	1,130	4,387
25-34	333	1,271	855	624	763	726	2,113	4,572
35-44	496	1,179	516	358	510	471	1,339	3,530
45-54	674	884	260	170	278	234	682	2,500
55-64	816	781	204	133	197	143	473	2,274
65 & OVER	1,172	781	159	117	197	113	427	2,540
15 & OVER	3,787	7,097	2,753	2,016	2,304	1,844	6,164	19,802

## | PERCENTAGE DISTRIBUTION |

SEX AND AGE GROUP	ELEMENTARY	SECONDARY		POST-SECONDARY			ALL LEVELS	
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE		SUB-TOTAL
MALE								
15-24	7.5	53.1	15.7	14.1	6.5	3.1	23.7	100.0
25-34	7.8	28.9	16.6	13.5	14.9	18.3	46.7	100.0
35-44	14.0	31.6	13.0	11.1	13.3	16.9	41.3	100.0
45-54	28.2	32.8	8.8	7.3	10.2	12.7	30.2	100.0
55-64	37.7	31.9	7.9	6.5	7.5	8.6	22.6	100.0
65 & OVER	48.4	28.8	5.7	5.0	5.5	6.6	17.1	100.0
15 & OVER	19.3	35.8	12.6	10.7	10.2	11.5	32.4	100.0
FEMALE								
15-24	6.0	47.1	19.0	13.8	10.0	4.1	27.9	100.0
25-34	6.7	26.7	20.9	13.8	18.5	13.4	45.7	100.0
35-44	14.1	35.2	16.2	9.2	15.6	9.7	34.5	100.0
45-54	25.7	37.9	11.9	6.3	12.1	6.0	24.4	100.0
55-64	34.3	36.6	10.0	5.3	9.7	4.1	19.1	100.0
65 & OVER	44.5	32.2	6.7	4.4	9.4	2.9	16.6	100.0
15 & OVER	19.0	35.9	15.2	9.7	13.0	7.2	29.9	100.0
BOTH SEXES								
15-24	6.7	50.2	17.3	14.0	8.2	3.6	25.8	100.0
25-34	7.3	27.8	18.7	13.6	16.7	15.9	46.2	100.0
35-44	14.1	33.4	14.6	10.1	14.4	13.3	37.9	100.0
45-54	26.9	35.4	10.4	6.8	11.1	9.4	27.3	100.0
55-64	35.9	34.3	9.0	5.9	8.6	6.3	20.8	100.0
65 & OVER	46.2	30.8	6.3	4.6	7.8	4.4	16.8	100.0
15 & OVER	19.1	35.8	13.9	10.2	11.6	9.3	31.1	100.0



## EDUCATIONAL ATTAINMENT OF THE POPULATION, BY AGE GROUP, CANADA

| YEAR 1990 |

| PROJECTED |

| NUMBER IN THOUSANDS |

SEX AND AGE GROUP	ELEMENTARY	SECONDARY		POST-SECONDARY			SUB-TOTAL	ALL LEVELS
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE		
MALE								
15-24	135	1,098	293	274	119	62	455	1,981
25-34	172	707	428	351	373	461	1,185	2,492
35-44	198	631	316	262	295	370	927	2,072
45-54	300	448	144	122	169	211	502	1,394
55-64	370	358	93	81	92	111	284	1,105
65 & OVER	502	377	79	67	77	91	234	1,192
15 & OVER	1,678	3,617	1,353	1,156	1,125	1,306	3,587	10,235
FEMALE								
15-24	107	928	341	259	186	80	524	1,900
25-34	138	595	515	373	454	336	1,163	2,411
35-44	197	649	387	229	355	242	825	2,058
45-54	284	516	193	101	191	108	400	1,392
55-64	362	443	131	70	123	59	252	1,188
65 & OVER	678	602	134	82	169	56	308	1,721
15 & OVER	1,765	3,732	1,700	1,114	1,479	880	3,473	10,670
BOTH SEXES								
15-24	242	2,026	633	533	305	142	979	3,880
25-34	310	1,301	943	725	827	797	2,349	4,903
35-44	395	1,280	703	490	650	612	1,752	4,130
45-54	584	964	337	223	361	319	902	2,787
55-64	732	800	224	151	215	170	536	2,293
65 & OVER	1,180	978	213	149	246	147	542	2,912
15 & OVER	3,443	7,349	3,053	2,270	2,604	2,186	7,060	20,995

## | PERCENTAGE DISTRIBUTION |

		ELEMENTARY		SECONDARY		POST-SECONDARY		ALL LEVELS	
SEX AND AGE GROUP		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE	SUB-TOTAL		
MALE									
15-24	6.8	55.4	14.8	13.8	6.0	3.1	23.0	100.0	
25-34	6.9	28.4	17.2	14.1	15.0	18.5	47.6	100.0	
35-44	9.6	30.4	15.2	12.6	14.2	17.9	44.7	100.0	
45-54	21.5	32.1	10.4	8.7	12.1	15.1	36.0	100.0	
55-64	33.5	32.4	8.5	7.3	8.3	10.0	25.7	100.0	
65 & OVER	42.1	31.6	6.6	5.6	6.4	7.6	19.7	100.0	
15 & OVER	16.4	35.3	13.2	11.3	11.0	12.8	35.0	100.0	
FEMALE									
15-24	5.6	48.9	17.9	13.6	9.8	4.2	27.6	100.0	
25-34	5.7	24.7	21.4	15.5	18.8	13.9	48.2	100.0	
35-44	9.6	31.5	18.8	11.1	17.3	11.7	40.1	100.0	
45-54	20.4	37.0	13.9	7.3	13.7	7.7	28.7	100.0	
55-64	30.5	37.3	11.0	5.9	10.4	5.0	21.2	100.0	
65 & OVER	39.4	35.0	7.8	4.8	9.8	3.3	17.9	100.0	
15 & OVER	16.5	35.0	15.9	10.4	13.9	8.3	32.5	100.0	
BOTH SEXES									
15-24	6.2	52.2	16.3	13.7	7.9	3.7	25.2	100.0	
25-34	6.3	26.5	19.2	14.8	16.9	16.3	47.9	100.0	
35-44	9.6	31.0	17.0	11.9	15.7	14.8	42.4	100.0	
45-54	20.9	34.6	12.1	8.0	12.9	11.4	32.4	100.0	
55-64	31.9	34.9	9.8	6.6	9.4	7.4	23.4	100.0	
65 & OVER	40.5	33.6	7.3	5.1	8.4	5.1	18.6	100.0	
15 & OVER	16.5	35.2	14.6	10.9	12.5	10.5	33.8	100.0	

## EDUCATIONAL ATTAINMENT OF THE POPULATION, BY AGE GROUP, CANADA

| YEAR 1995 |

| PROJECTED |

| NUMBER IN THOUSANDS |

SEX AND AGE GROUP	ELEMENTARY	SECONDARY		POST-SECONDARY				ALL LEVELS
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE	SUB-TOTAL	
MALE								
15-24	118	1,119	285	267	109	59	434	1,956
25-34	146	650	394	350	349	448	1,147	2,337
35-44	176	673	390	307	343	427	1,077	2,316
45-54	258	537	213	182	232	291	705	1,714
55-64	320	360	104	92	108	133	333	1,117
65 & OVER	473	435	96	80	94	113	287	1,292
15 & OVER	1,491	3,774	1,483	1,278	1,235	1,470	3,983	10,731
FEMALE								
15-24	98	945	330	256	168	76	500	1,873
25-34	128	533	475	375	424	318	1,116	2,251
35-44	155	632	469	295	422	307	1,024	2,280
45-54	251	600	280	159	267	165	590	1,720
55-64	313	446	149	80	137	75	292	1,200
65 & OVER	669	706	167	98	196	71	365	1,907
15 & OVER	1,615	3,861	1,869	1,262	1,614	1,010	3,886	11,232
BOTH SEXES								
15-24	216	2,064	614	523	277	135	934	3,829
25-34	274	1,182	869	725	773	765	2,263	4,588
35-44	332	1,305	859	602	764	734	2,100	4,596
45-54	510	1,137	493	340	499	456	1,295	3,434
55-64	633	807	253	173	246	207	625	2,317
65 & OVER	1,142	1,141	263	178	290	183	652	3,198
15 & OVER	3,106	7,636	3,352	2,540	2,849	2,480	7,869	21,962

| PERCENTAGE DISTRIBUTION |

SEX AND AGE GROUP	ELEMENTARY	SECONDARY		POST-SECONDARY			ALL LEVELS	
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE		SUB-TOTAL
MALE								
15-24	6.0	57.2	14.6	13.6	5.5	3.0	22.2	100.0
25-34	6.2	27.8	16.9	15.0	14.9	19.2	49.1	100.0
35-44	7.6	29.1	16.8	13.2	14.8	18.5	46.5	100.0
45-54	15.1	31.3	12.4	10.6	13.6	17.0	41.1	100.0
55-64	28.6	32.3	9.3	8.3	9.7	11.9	29.8	100.0
65 & OVER	36.6	33.7	7.5	6.2	7.3	8.7	22.2	100.0
15 & OVER	13.9	35.2	13.8	11.9	11.5	13.7	37.1	100.0
FEMALE								
15-24	5.2	50.5	17.6	13.6	9.0	4.1	26.7	100.0
25-34	5.7	23.7	21.1	16.6	18.8	14.1	49.6	100.0
35-44	6.8	27.7	20.6	12.9	18.5	13.5	44.9	100.0
45-54	14.6	34.9	16.3	9.2	15.5	9.6	34.3	100.0
55-64	26.1	37.2	12.4	6.7	11.4	6.2	24.3	100.0
65 & OVER	35.1	37.0	8.8	5.1	10.3	3.7	19.1	100.0
15 & OVER	14.4	34.4	16.6	11.2	14.4	9.0	34.6	100.0
BOTH SEXES								
15-24	5.6	53.9	16.0	13.6	7.2	3.5	24.4	100.0
25-34	6.0	25.8	18.9	15.8	16.8	16.7	49.3	100.0
35-44	7.2	28.4	18.7	13.1	16.6	16.0	45.7	100.0
45-54	14.8	33.1	14.4	9.9	14.5	13.3	37.7	100.0
55-64	27.3	34.8	10.9	7.4	10.6	8.9	27.0	100.0
65 & OVER	35.7	35.7	8.2	5.6	9.1	5.7	20.4	100.0
15 & OVER	14.1	34.8	15.3	11.6	13.0	11.3	35.8	100.0

## EDUCATIONAL ATTAINMENT OF THE POPULATION, BY AGE GROUP, CANADA

-----  
YEAR 2000
PROJECTED
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NUMBER IN THOUSANDS

SEX AND AGE GROUP	ELEMENTARY		SECONDARY		POST-SECONDARY			ALL LEVELS
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE	SUB-TOTAL	
MALE								
15-24	107	1,160	311	295	117	62	473	2,052
25-34	125	569	336	331	309	415	1,054	2,085
35-44	170	695	443	340	378	473	1,192	2,500
45-54	203	604	288	242	289	363	895	1,990
55-64	287	395	132	119	140	174	434	1,247
65 & OVER	429	479	113	93	112	135	340	1,361
15 & OVER	1,322	3,901	1,623	1,421	1,345	1,622	4,388	11,233
FEMALE								
15-24	95	972	357	283	181	79	543	1,966
25-34	124	468	406	351	373	280	1,004	2,002
35-44	131	595	524	349	467	356	1,172	2,422
45-54	202	647	374	227	345	228	801	2,023
55-64	281	483	189	107	174	106	386	1,340
65 & OVER	635	783	198	113	219	87	419	2,035
15 & OVER	1,467	3,948	2,048	1,431	1,758	1,136	4,325	11,787
BOTH SEXES								
15-24	203	2,131	668	578	297	141	1,016	4,018
25-34	249	1,038	742	682	682	695	2,058	4,087
35-44	301	1,290	967	689	845	829	2,363	4,922
45-54	405	1,251	662	470	634	592	1,696	4,013
55-64	568	878	321	226	314	280	820	2,586
65 & OVER	1,064	1,262	311	207	331	221	759	3,396
15 & OVER	2,789	7,849	3,670	2,852	3,103	2,758	8,713	23,021

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PERCENTAGE DISTRIBUTION

SEX AND AGE GROUP		ELEMENTARY		-----SECONDARY-----		-----POST-SECONDARY-----		ALL LEVELS
			SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE	
MALE								
15-24	5.2	56.5	15.1	14.4	5.7	3.0	23.1	100.0
25-34	6.0	27.3	16.1	15.9	14.8	19.9	50.6	100.0
35-44	6.8	27.8	17.7	13.6	15.1	18.9	47.7	100.0
45-54	10.2	30.3	14.5	12.2	14.5	18.3	45.0	100.0
55-64	23.0	31.6	10.5	9.6	11.2	14.0	34.8	100.0
65 & OVER	31.6	35.2	8.3	6.9	8.2	9.9	25.0	100.0
15 & OVER	11.8	34.7	14.4	12.7	12.0	14.4	39.1	100.0
FEMALE								
15-24	4.8	49.4	18.1	14.4	9.2	4.0	27.6	100.0
25-34	6.2	23.4	20.3	17.5	18.6	14.0	50.2	100.0
35-44	5.4	24.6	21.6	14.4	19.3	14.7	48.4	100.0
45-54	10.0	32.0	18.5	11.2	17.0	11.3	39.6	100.0
55-64	21.0	36.1	14.1	8.0	13.0	7.9	28.8	100.0
65 & OVER	31.2	38.5	9.7	5.6	10.8	4.3	20.6	100.0
15 & OVER	12.4	33.5	17.4	12.1	14.9	9.6	36.7	100.0
BOTH SEXES								
15-24	5.0	53.1	16.6	14.4	7.4	3.5	25.3	100.0
25-34	6.1	25.4	18.1	16.7	16.7	17.0	50.4	100.0
35-44	6.1	26.2	19.7	14.0	17.2	16.9	48.0	100.0
45-54	10.1	31.2	16.5	11.7	15.8	14.7	42.3	100.0
55-64	22.0	33.9	12.4	8.7	12.1	10.8	31.7	100.0
65 & OVER	31.3	37.2	9.2	6.1	9.8	6.5	22.4	100.0
15 & OVER	12.1	34.1	15.9	12.4	13.5	12.0	37.8	100.0

TABLE I-2. EDUCATIONAL ATTAINMENT OF THE LABOUR FORCE, BY AGE GROUP, CANADA

| YEAR 1977 |

| HISTORICAL |

## | PERCENTAGE DISTRIBUTION |

SEX AND AGE GROUP	ELEMENTARY	SECONDARY		POST-SECONDARY			ALL LEVELS		
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE	SUB-TOTAL	PER CENT THOUSANDS	
MALE									
15-24	6.9	47.9	20.5	14.2	7.0	3.4	24.7	100.0	1,577
25-44	16.9	31.8	12.2	10.3	12.8	16.1	39.2	100.0	3,040
45-64	36.8	32.3	7.9	6.2	7.7	9.0	22.9	100.0	1,843
65 & OVER	45.9	28.3	5.2	5.3	5.2	10.0	20.5	100.0	134
15 & OVER	20.7	35.7	12.8	10.0	9.8	11.0	30.8	100.0	6,594
FEMALE									
15-24	3.7	36.5	28.8	14.6	11.9	4.6	31.0	100.0	1,286
25-44	12.7	33.2	15.9	9.3	17.5	11.4	38.2	100.0	1,758
45-64	25.4	37.9	11.4	6.3	13.2	5.8	25.3	100.0	931
65 & OVER	30.4	31.5	8.7	7.2	15.4	7.0	29.6	100.0	47
15 & OVER	13.0	35.3	18.9	10.2	14.7	7.9	32.8	100.0	4,022
BOTH SEXES									
15-24	5.5	42.8	24.2	14.4	9.2	3.9	27.5	100.0	2,863
25-44	15.4	32.3	13.5	9.9	14.5	14.4	38.8	100.0	4,797
45-64	33.0	34.2	9.1	6.3	9.5	8.0	23.7	100.0	2,774
65 & OVER	41.9	29.1	6.1	5.8	7.9	9.2	22.9	100.0	181
15 & OVER	17.8	35.6	15.1	10.1	11.7	9.8	31.6	100.0	10,616

| YEAR 1980 |

| PROJECTED |

## | PERCENTAGE DISTRIBUTION |

SEX AND AGE GROUP	ELEMENTARY	SECONDARY		POST-SECONDARY			ALL LEVELS		
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE	SUB-TOTAL	PER CENT	THOUSANDS
MALE									
15-24	6.7	48.3	21.0	13.6	7.3	3.2	24.1	100.0	1,649
25-44	13.7	31.0	13.4	11.3	13.6	17.0	41.9	100.0	3,356
45-64	34.2	32.8	8.2	6.6	8.3	9.9	24.8	100.0	1,849
65 & OVER	41.4	30.2	5.9	5.7	5.8	11.1	22.5	100.0	130
15 & OVER	18.0	35.5	13.7	10.5	10.6	11.8	32.8	100.0	6,984
FEMALE									
15-24	3.5	35.5	28.7	14.3	13.2	4.8	32.4	100.0	1,368
25-44	10.1	30.7	17.1	10.8	18.4	12.8	42.0	100.0	2,117
45-64	23.5	38.2	11.8	6.5	13.6	6.3	26.4	100.0	992
65 & OVER	27.4	32.8	9.4	7.4	15.6	7.4	30.4	100.0	50
15 & OVER	11.3	33.8	19.4	10.9	15.8	8.9	35.5	100.0	4,527
BOTH SEXES									
15-24	5.2	42.5	24.5	13.9	10.0	3.9	27.8	100.0	3,017
25-44	12.3	30.9	14.9	11.1	15.5	15.4	41.9	100.0	5,473
45-64	30.5	34.7	9.5	6.5	10.1	8.7	25.3	100.0	2,841
65 & OVER	37.6	30.9	6.9	6.1	8.5	10.1	24.7	100.0	180
15 & OVER	15.3	34.9	15.9	10.6	12.6	10.6	33.9	100.0	11,511



## EDUCATIONAL ATTAINMENT OF THE LABOUR FORCE, BY AGE GROUP, CANADA

| YEAR 1985 |

| PROJECTED |

## | PERCENTAGE DISTRIBUTION |

SEX AND AGE GROUP	ELEMENTARY		SECONDARY		POST-SECONDARY			ALL LEVELS	
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE	SUB-TOTAL	PER CENT	THOUSANDS
MALE									
15-24	6.3	48.5	20.6	13.5	7.5	3.6	24.7	100.0	1,572
25-44	9.9	30.1	15.3	12.4	14.4	17.9	44.7	100.0	3,966
45-64	29.7	33.1	8.8	7.3	9.5	11.7	28.4	100.0	1,873
65 & OVER	35.2	32.6	6.8	6.2	6.6	12.5	25.3	100.0	117
15 & OVER	14.5	34.7	14.7	11.3	11.6	13.3	36.1	100.0	7,528
FEMALE									
15-24	3.4	34.8	27.8	14.7	13.8	5.6	34.1	100.0	1,344
25-44	7.2	27.4	18.8	12.6	19.5	14.4	46.6	100.0	2,767
45-64	20.3	38.2	12.7	6.9	14.5	7.4	28.7	100.0	1,068
65 & OVER	23.4	34.6	10.7	7.6	15.6	8.0	31.2	100.0	59
15 & OVER	9.1	31.6	19.8	11.9	17.0	10.7	39.5	100.0	5,238
BOTH SEXES									
15-24	4.9	42.2	23.9	14.0	10.4	4.5	29.0	100.0	2,916
25-44	8.8	29.0	16.8	12.5	16.5	16.5	45.4	100.0	6,733
45-64	26.3	35.0	10.2	7.1	11.3	10.1	28.5	100.0	2,941
65 & OVER	31.3	33.3	8.1	6.7	9.6	11.0	27.3	100.0	176
15 & OVER	12.3	33.4	16.8	11.5	13.8	12.2	37.5	100.0	12,766

| YEAR 1990 |

| PROJECTED |

## | PERCENTAGE DISTRIBUTION |

SEX AND AGE GROUP	ELEMENTARY		SECONDARY		POST-SECONDARY			ALL LEVELS	
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE	SUB-TOTAL	PER CENT	THOUSANDS
MALE									
15-24	5.7	50.8	19.5	13.3	7.1	3.6	23.9	100.0	1,381
25-44	7.6	29.3	16.6	13.4	14.8	18.3	46.5	100.0	4,395
45-64	24.2	32.7	9.9	8.4	11.0	13.8	33.2	100.0	1,956
65 & OVER	29.6	34.6	7.7	6.8	7.4	13.9	28.1	100.0	108
15 & OVER	11.7	34.0	15.3	12.0	12.4	14.6	39.0	100.0	7,840
FEMALE									
15-24	3.2	36.4	26.4	14.5	13.7	5.8	34.0	100.0	1,198
25-44	5.4	24.8	19.9	14.2	20.2	15.5	49.9	100.0	3,376
45-64	16.5	36.9	14.1	7.6	15.7	9.1	32.4	100.0	1,170
65 & OVER	19.9	35.8	11.9	8.0	15.8	8.7	32.5	100.0	69
15 & OVER	7.3	29.8	20.0	12.9	17.9	12.1	42.9	100.0	5,813
BOTH SEXES									
15-24	4.5	44.1	22.7	13.9	10.1	4.6	28.6	100.0	2,579
25-44	6.7	27.3	18.0	13.7	17.2	17.1	48.0	100.0	7,771
45-64	21.3	34.3	11.5	8.1	12.7	12.1	32.9	100.0	3,126
65 & OVER	25.8	35.1	9.3	7.2	10.6	11.9	29.8	100.0	177
15 & OVER	9.9	32.2	17.3	12.4	14.7	13.5	40.6	100.0	13,653

## EDUCATIONAL ATTAINMENT OF THE LABOUR FORCE, BY AGE GROUP, CANADA

| YEAR 1995 |

| PROJECTED |

## | PERCENTAGE DISTRIBUTION |

SEX AND AGE GROUP	ELEMENTARY	SECONDARY		POST-SECONDARY			ALL LEVELS		
		SOME	COMPLETED	SOME	CERT. OR DIPLOMA	UNIV. DEGREE	SUB-TOTAL	PER CENT THOUSANDS	
MALE									
15-24	5.1	52.6	19.2	13.2	6.5	3.5	23.1	100.0	1,349
25-44	6.5	28.4	17.1	14.0	15.0	18.9	48.0	100.0	4,499
45-64	18.3	31.9	11.5	9.9	12.5	15.9	38.4	100.0	2,218
65 & OVER	25.0	35.9	8.4	7.2	8.1	15.4	30.7	100.0	94
15 & OVER	9.7	33.4	15.9	12.7	12.9	15.5	41.1	100.0	8,160
FEMALE									
15-24	3.0	37.9	26.1	14.7	12.6	5.7	33.0	100.0	1,166
25-44	4.4	22.7	29.4	15.5	20.7	16.3	52.4	100.0	3,606
45-64	12.3	34.4	15.9	9.1	17.2	11.1	37.4	100.0	1,336
65 & OVER	17.0	36.4	12.9	8.3	15.8	9.6	33.7	100.0	76
15 & OVER	6.0	28.3	20.4	13.9	18.4	13.1	45.3	100.0	6,184
BOTH SEXES									
15-24	4.1	45.8	22.4	13.9	9.4	4.5	27.7	100.0	2,515
25-44	5.6	25.9	18.6	14.7	17.6	17.7	50.0	100.0	8,105
45-64	16.0	32.8	13.2	9.6	14.3	14.1	38.0	100.0	3,554
65 & OVER	21.4	36.1	10.4	7.7	11.6	12.8	32.1	100.0	170
15 & OVER	9.1	31.2	17.8	13.2	15.2	14.5	42.9	100.0	14,344

| YEAR 2000 |

| PROJECTED |

## | PERCENTAGE DISTRIBUTION |

SEX AND AGE GROUP	EL E M E N T A R Y	-----S E C O N D A R Y-----		-----P O S T - S E C O N D A R Y-----			A L L L E V E L S		
		S O M E	C O M P L E T E D	S O M E	C E R T . O R D I P L O M A	U N I V . D E G R E E	S U B - T O T A L	P E R C E N T	T H O U S A N D S
M A L E									
15-24	4.4	51.8	20.0	13.8	6.7	3.4	23.9	100.0	1,440
25-44	6.0	27.5	17.3	14.5	15.2	19.5	49.2	100.0	4,380
45-64	13.4	30.8	13.2	11.4	13.7	17.5	42.6	100.0	2,593
65 & OVER	20.9	36.3	9.0	7.8	8.9	17.0	33.7	100.0	81
15 & OVER	8.2	32.7	16.4	13.4	13.2	16.1	42.7	100.0	8,494
F E M A L E									
15-24	2.7	36.8	26.7	15.4	12.8	5.6	33.8	100.0	1,242
25-44	4.1	21.2	20.5	16.5	20.9	16.9	54.3	100.0	3,543
45-64	8.9	31.3	17.6	10.7	18.6	13.1	42.3	100.0	1,566
65 & OVER	14.6	36.5	13.8	8.6	15.9	10.5	35.1	100.0	81
15 & OVER	3.1	26.8	20.9	14.8	18.7	13.7	47.2	100.0	6,432
B O T H S E X E S									
15-24	3.6	44.9	23.1	14.5	9.5	4.4	28.5	100.0	2,682
25-44	5.2	24.7	18.7	15.4	17.7	18.3	51.5	100.0	7,923
45-64	11.7	30.9	14.9	11.1	15.5	15.9	42.5	100.0	4,159
65 & OVER	17.7	36.4	11.4	8.2	12.4	13.8	34.4	100.0	162
15 & OVER	6.8	30.2	18.3	14.0	15.6	15.1	44.6	100.0	14,926

APPENDIX II

## ALTERNATIVE PROJECTIONS OF EDUCATIONAL ATTAINMENT

The projected educational attainment of the population provided in the main body of the report incorporates certain assumptions about future enrolment ratios — the proportion of the population attending school. These assumptions are shown in Chart 1. Since by law virtually all children attend elementary school, there is little variation in the elementary enrolment ratio. While more variation in the secondary ratio is possible, it is not expected to have a significant impact on the educational attainment of the population.

The post-secondary enrolment ratio is much more uncertain. The tendency of young people to enrol in a college or university is volatile, affected by factors such as the job market, prevailing social values, government expenditures and policy, etc. To assess the impact of varying post-secondary enrolment ratios on the future educational attainment of the population, three alternative projections were produced, incorporating the projected ratios shown in Table II-1. The assumed college ratios (total full-time college enrolment related to the 18-21 age group) range from 11.2% to 13.5% in 1985. The 1977 value was 13.1%. The 1977 value was artificially high, because of an over-sized secondary school graduating class in 1976. This was caused by structural changes in Quebec's school system in the early 1970s. The university enrolment ratio (total full-time enrolment related to the 18-24 age group) assumed in the projections varied from 10.3% to 12.5% in 1985. In 1977 it was 12.0%.

The effect of the alternative ratios on the educational attainment of the 1995 population can be seen in Table II-2. Projection "B" is the one presented in the main body of the report. Older age groups are not affected, since the forecast period is not long enough to allow the graduates to reach these age ranges.

TABLE II-1. Alternative Post-secondary Enrolment Ratios Used in Three Educational Attainment Projections

	College enrolment rates(1)			University enrolment rates(2)			Total post-secondary enrolment rates(3)		
	A	B	C	A	B	D	A	B	CD
	(percent)								
1971		11.2			12.0			18.5	
1975		12.5			12.4			19.9	
1977		13.1			12.0			19.6	
1982	13.6	11.8	12.9	12.5	11.3	10.4	20.0	18.0	17.0
1985	13.5	11.2	12.0	12.5	11.2	10.3	19.8	17.3	17.0
1990	13.4	11.5	12.5	13.0	11.6	10.5	20.3	17.9	17.4
1995	13.5	11.9	12.7	13.2	12.0	10.8	20.8	18.7	17.8
2000	13.5	12.1	12.7	13.6	12.5	11.0	21.4	19.5	18.2

Source: Adapted from Table 29, "Alternative enrolment projections as a percentage of the relevant age group population, 1971-72 to 1986-87," Zsigmond et al., Out of School - Into the Labour Force (Ottawa: Statistics Canada, 1978), 340-341.

- (1) College enrolment related to size of the 18-21 population.
- (2) Full-time university enrolment related to the size of the 18-24 population.
- (3) Full-time post-secondary enrolment related to the size of the 18-24 population.

By 1995, 15-24-year-olds are most affected. The proportion of them with some or a completed post-secondary education varies from 23.9% in Projection "CD" to 27.9% in "A", compared with 24.6% in 1977. Variation in the 25-34 age group is somewhat less. For example, the proportion of 25-34-year-olds with degrees in 1995 varies from 15.9% in Projection "CD" to 17.4% in Projection "A". This compared with 14.0% in 1977. The variation in the post-secondary certificate or diploma category is from 16.6% in Projection "CD" to 17.3% in Projection "A". It was 15.1% in 1977. Beyond the 25-34-year-olds, the variation is insignificant.



Table II-2. Comparison of the Educational Attainment of the Population in 1995 Under Different Post-secondary Enrolment Assumptions, by Age Group

Age group	Projection	Educational attainment							Total post-secondary	Total
		Elementary	Some secondary	Completed secondary	Some post-secondary	Certificate or diploma	Degree			
15-24	A	5.8	53.8	12.5	15.4	8.5	4.0	27.9	100.0	
	B	5.6	53.9	16.0	13.6	7.2	3.5	24.4	100.0	
	CD	5.8	54.0	16.3	13.1	7.7	3.1	23.9	100.0	
25-34	A	6.2	25.0	18.3	15.8	17.3	17.4	50.5	100.0	
	B	6.0	25.8	18.9	15.8	16.8	16.7	49.3	100.0	
	CD	6.0	26.4	18.7	16.3	16.6	15.9	48.9	100.0	
35-44	A	7.3	28.1	18.4	13.1	16.8	16.3	46.1	100.0	
	B	7.2	28.4	18.7	13.1	16.6	16.0	45.7	100.0	
	CD	7.3	28.7	18.7	13.3	16.5	15.5	45.3	100.0	
45-54	A	14.8	32.9	14.2	9.9	14.7	13.5	38.0	100.0	
	B	14.8	33.1	14.4	9.9	14.5	13.3	37.7	100.0	
	CD	14.8	33.1	14.3	9.9	14.6	13.3	37.8	100.0	
55-64	A	27.3	34.8	10.9	7.4	10.6	9.0	27.0	100.0	
	B	27.3	34.8	10.9	7.4	10.6	8.9	27.0	100.0	
	CD	27.3	34.8	10.9	7.5	10.6	8.9	27.0	100.0	
65 and over	A	35.7	35.7	8.2	5.6	9.1	5.7	20.4	100.0	
	B	35.7	35.7	8.2	5.6	9.1	5.7	20.4	100.0	
	CD	35.7	35.7	8.2	5.6	9.1	5.7	20.4	100.0	
Total	A	14.2	35.0	13.9	11.9	13.3	11.6	36.8	100.0	
	B	14.1	34.8	15.3	11.6	13.0	11.3	35.8	100.0	
	CD	14.2	35.0	15.3	11.6	13.0	10.9	35.6	100.0	

For the population as a whole, the 1995 range is from 35.6% with a post-secondary education in Projection "CD", to 36.8% in "A" (26.1% in 1977).

It can be seen that, in general, the range of enrolment rates used in the projection does not introduce significant change in the educational attainment of the overall population during the next fifteen to twenty years. Of course, the limited variation assumed in the ratios in no way compares with the historical surge during the 1960s and early 1970s (see Chart 1). A repeat of such a rapid change in enrolment ratios is not foreseen for the projected period, at least during the early years.

Of course, these data provide no information on the type of education young people are choosing. There is a move toward professional and semi-professional occupation-oriented disciplines in colleges and universities, and away from arts and general science. This could have an impact on the occupational mix of post-secondary educated people during the next ten to twenty years.

### APPENDIX III

#### NOTES ON THE METHODOLOGY AND DATA<sup>1</sup>

Projections of the population and labour force by age and sex are the basis of the educational attainment model. The population projection was chosen from a series produced by the Population Estimates and Projections Division of Statistics Canada, using information from the 1976 Census.<sup>2</sup> The labour force projection by age and sex was adapted from Labour Force Projection "A" in Out of School — Into the Labour Force.<sup>3</sup>

#### Projecting the Educational Attainment of the Population

The projection technique is basically a flow model. Transitions between states or categories (age and educational level) are estimated for each year. Some of these "states" are shown diagrammatically on the following page. The projected educational attainment for any given year is based on the previous year's attainment, and the number of people who improve their formal education and move from one state to another, i.e., by entering Grade 9 (thus moving from the elementary to "some" secondary category); by obtaining a secondary graduation diploma (some secondary to completed secondary); by enrolling at a post-secondary institution for the first time (some secondary or completed secondary to some post-secondary), or by receiving a post-secondary degree, certificate or diploma (some post-secondary to completed post-secondary). Therefore, a base year of educational attainment-age group data, a population projection by age, and the number of transitions from one level of education

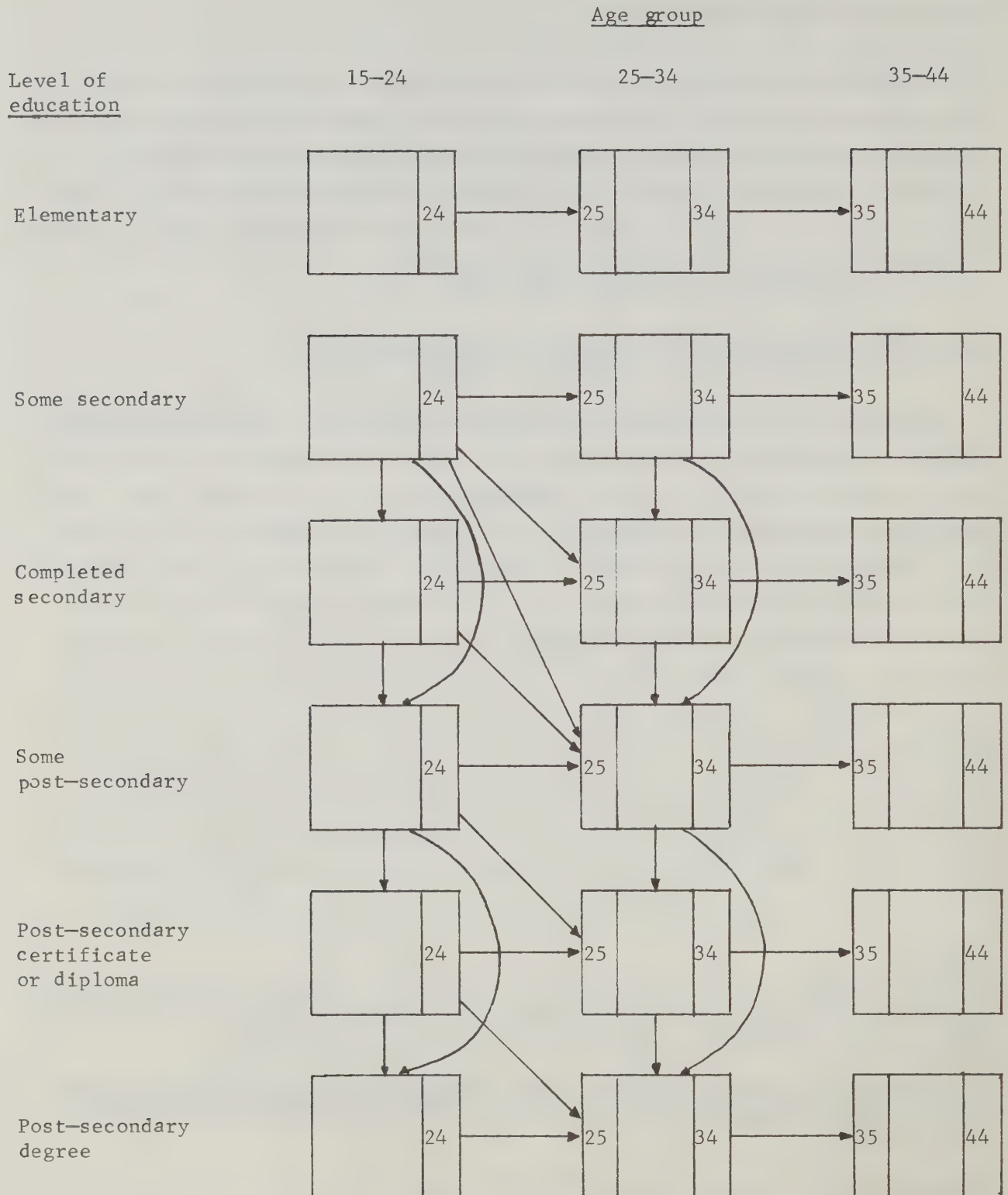
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<sup>1</sup>Further details can be obtained from: Projections Section, Education, Science and Culture Division, Statistics Canada, 16th Floor, Station "A", R.H. Coats Bldg., Tunney's Pasture, Ottawa, Ont. K1A 0T6 (613) 995-9685.

<sup>2</sup>Projection no. 3 from Statistics Canada, Population Projections for Canada and provinces 1976-2001, Catalogue 91-520, was used as the population base projection.

<sup>3</sup>Zsigmond et al., Out of School, 157-159.

Chart 14. EDUCATIONAL ATTAINMENT FLOW MODEL





to another are required to project the attainment of the population. All of this information is currently available, or can be estimated. The number of transitions within the education system has been obtained from Out of School — Into the Labour Force.

#### Part-time Study

An attempt was made to incorporate the effects of part-time study, but the lack of comprehensive data makes it difficult to determine its precise impact (particularly, part-time non-university). Furthermore, there is little data on which to estimate the number of people who actually make the transition from one educational level to another by part-time study. In addition, because available data allow only broad attainment categories, substantial upgrading can occur within any category without being reflected by the projections. Notably, persons enrolling part-time in post-secondary courses often already have some education at that level, or may even have a degree. Hence, their attainment, as defined by the broad categories in this model, would not reflect the on-going improvement of their education. Despite these difficulties, an attempt was made to account for the impact of part-time study on the educational attainment of the population.

#### Base Year Data

The primary input data are the educational attainment of the population by age group and sex for any specific base year, in this case, 1977.<sup>1</sup> Only the population 15 and over is considered as those under 15 are still in school and have not reached their ultimate level of attainment.

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<sup>1</sup>From the Labour Force Survey.

Information about educational attainment is available from two sources — the Census and Labour Force Survey. The educational categories used by these sources differ somewhat. In fact, definitions of educational levels have changed from Census to Census.<sup>1</sup> This meant that data from the 1961 and 1971 Censuses had to be adjusted to fit current definitions.

The data suggest that the most consistent historical time series is the 1961 and 1971 Censuses, and 1977 Labour Force Survey.<sup>2</sup> Hence, the 1977 Labour Force Survey data was used as the base year for the projections.<sup>3</sup> The Labour Force Survey, however, does not make the important distinction between "some secondary" and "completed secondary". The division was, therefore, estimated using 1976 Census data.

#### Projections for Age Groups over 34

Except for upgrading through part-time study, it was assumed that after 34, no one moves from one educational category to another. The 34+ population simply advances from one age group to another without changing their level of educational attainment. This introduces some error, but examination of enrolment data by age suggests it is not significant.<sup>4</sup> To accurately estimate

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<sup>1</sup>For example, the educational categories in the Labour Force Survey are: grade 8 or less, secondary school, "some" post-secondary education, college diploma or certificate, and university degree. In the 1971 Census the major categories were: grade 8 or less, grades 9-11, grades 12-13, non-university post-secondary, "some" university, and degree. In the 1961 Census the major categories were grade 8 or less, grades 9-11, grades 12-13, "some" university, and degree.

<sup>2</sup>Comparison of the age group-education level ratios between the 1961, 1971 and 1976 Censuses, and the 1961, 1971 Censuses and 1977 Annual Average Labour Force Survey data, revealed the latter group a more consistent time series.

<sup>3</sup>The 1977 Labour Force Survey data has been revised since the production of the projections for this report using new 1977 population estimates based on the 1976 Census. The data in this report do not incorporate this new data.

<sup>4</sup>1.6% of full-time university undergraduates were 35 or over in 1977-78; 1.2% of full-time non-university students were 35 or over.

the attainment of an age group (e.g., 45-54), adjustments must be made for 44-year-olds entering the age range and 54-year-olds leaving it. As the model does not produce projections by single year of age, the problem, therefore, is to determine the attainment of those leaving one age group and entering the next, as this is the only source of change in any group's level of education. The attainment of 44-year-olds was estimated by averaging the proportion of 35-44-year-olds with a particular level of education and the proportion of 45-54-year-olds with the same level.<sup>1</sup> These estimates were adjusted based on a comparison with the actual distribution by education of 34-, 44-, 54-, and 64-year-olds in 1977.<sup>2</sup> As well, comparison of the age groups over a ten-year period (e.g., degree-holders aged 45-54 in 1987 compared with degree-holders aged 35-44 in 1977) provided a check on the accuracy of the flows. Only migration and death could alter the number of people with a given level of education in consecutive ten-year age groups at two points in time, for example 1977 and 1987. (See flow chart on page 84.)

#### Projections for Age Groups under 34

For the 15-24 and 25-34 age groups, it was also necessary to estimate the upward passage of persons through educational levels. For example, persons aged 15-24 with "some secondary" in a particular year can remain in this category, graduate to the "completed secondary" category, or join the "some post-secondary" category by entering first-year college or university. Furthermore, the 24-year-olds in this category will enter the 25-34 age group the next year, and may at the same time move into a higher attainment category. (See flow chart.) It is assumed that those 15 and over with only elementary school will not upgrade their education.

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<sup>1</sup>Example: In 1977, 10.1% of the 35-44 age group had a degree, 6.5% of the 45-54 age group. The estimated percentage of 44-year-olds having degrees is therefore 8.3%, the average of the two age groups. The percentage of 44-year-olds in each educational category can similarly be estimated to obtain the educational attainment of 44-year-olds (i.e., the educational attainment of those moving from the 35-44 age group in one year to the 45-54 age group the next year).

<sup>2</sup>Obtained from Labour Force Survey data.

The data necessary to estimate these transitions were obtained from the projections of enrolment and graduates in Out of School — Into the Labour Force. Age breakdowns were estimated from the Statistics Canada USIS<sup>1</sup> system, the Ontario CAAT<sup>2</sup> student and graduate information systems maintained by the provincial department of education, the Statistics Canada university graduates data file, and the 1974–75 survey of post-secondary students conducted by Statistics Canada.

Given the projected flows and the base population, the model estimates the population by age and educational attainment for the next year. The population projection by age is used as a check to assure that the sum across educational categories equals the total age group. Because of the many estimates required to trace movement between categories by those under 35 and the possibility of unforeseen changes in the enrolment ratio, the educational profile projected for the young population is more susceptible to error than that for the population over 35.

### Migration and Death

Two other exogenous factors influence the number of people with various levels of educational attainment: deaths and migration.

There is a substantial body of demographic literature that shows a positive relationship between socio-economic background (including level of education) and life expectancy.<sup>3</sup> However, since deaths were accounted for in the population projection, which the author adapted from Statistics Canada sources, for the sake of simplicity it was assumed that persons who die in any given year would

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<sup>1</sup>University Student Information System.

<sup>2</sup>Colleges of Applied Arts and Technology.

<sup>3</sup>For example, see Kittagawa, Evelyn, "On Mortality", Demography, Vol. 14, No. 4 (Nov.) 1977, pg. 381–389 and Wilkins, Russ, Health Status in Canada, 1926–1976, chapter 4.



have the same educational distribution as the population. This assumption results in no special adjustment being required for the impact of deaths, but its net effect will be to somewhat underestimate the educational attainment of the older population near the end of the forecast period (the 1990s). Adjustments for migration were necessary because the educational characteristics of migrants differ significantly from the Canadian population in virtually all age groups. Data from the Canada Employment and Immigration Commission reveal that immigrants are somewhat more highly educated. Therefore, after all movement was accounted for, an adjustment was made for the higher attainment of migrants. In the projections, the educational attainment of migrants was assumed to change at the same rate as that of the Canadian population, although the educational distribution of migrants differed from that of the population as a whole for any given year, and this difference was accounted for in the projections.

#### Projecting the Educational Attainment of the Labour Force

Given the educational attainment of the population by age group, participation rates were applied to determine the attainment of the labour force. As mentioned earlier, the labour force projection by age and sex was not produced for this study, but taken from another source. Therefore, the sum across educational categories in a particular age group must equal the original labour force projection for that age group. For the base year (1977) participation rates by educational level, age group and sex were calculated.<sup>1</sup>

Unfortunately, a consistent time series of such rates is not available, and hence, historical trends for each of the six educational categories could

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<sup>1</sup>Note that the participation rate referred to here is the percentage of the total population in a particular category in the labour force. This differs very slightly from the participation rate in Statistics Canada's Labour Force Survey publications, where the population and labour force exclude residents of the Yukon and Northwest Territories, persons living on Indian reserves, inmates of institutions, and full-time members of the armed forces.

not be established. Without such data it is impossible to determine if within any age group the participation rate of university graduates is following a different trend than the rate of secondary graduates. Therefore, it was assumed that the rates in the six education categories would "change together". For example, if the participation rate of females aged 25-44 increased between 1977 and 1978 (known from the projection by age and sex), the participation rates in each education category would be increased at the same rate until the sum across all categories equalled the total labour force aged 25-44. Thus, the participation rates at each educational level "changed together" until the labour force projection by age and sex exactly matched Labour Force Projection "A" in Out of School - Into the Labour Force.

#### Notes on Educational Attainment from the Census and Labour Force Survey

The 1961 and 1971 Census data on educational attainment were adjusted to make their educational categories consistent with those of the 1977 survey. The unadjusted Census population data are provided on the following pages.

As mentioned earlier, there are two sources of educational attainment data - the Census and the Labour Force Survey. Since the questions in these surveys differ, the results also differ. Furthermore, questions on educational attainment vary from Census to Census.<sup>1</sup> The same is true of the Labour Force Survey. Before 1975 educational attainment data were collected only one month a year. But since the major revision in 1975, attainment data have been collected monthly. Hence, pre-revision data are not comparable with what has subsequently been collected. Furthermore, the time series of Labour Force Survey educational data collected since 1975 is not entirely consistent.

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<sup>1</sup>For example, the 1976 Census provides information on the number of people with a secondary school graduation diploma, and a non-university and university undergraduate diploma. However, such information is not available from the 1971 Census, as the questions on education were less detailed.

Mr. I.D. Macredie, Chief of the Labour Force Activities Section of the Economic Characteristics staff explains:

The Labour Force Survey first introduced educational attainment measures into its monthly questionnaire in January 1975. Since that introduction, a number of operational difficulties relating to the measurement of post-secondary education have been encountered and corrective actions have been applied to the collection procedures. As a result, the consistency of the Labour Force Survey educational attainment time series may have been adversely affected. An evaluation of this time series as a basis for measuring trends in educational attainment is currently underway at Statistics Canada.

Thus, the currently available annual time series on educational attainment is somewhat suspect.

The categories "some" and "completed" post-secondary non-university may be somewhat overestimated because of inclusion of persons with trades/vocational training and those who attended a post-secondary non-university institution for only a brief period. Consequently, the lower levels of attainment may be underestimated.

Such a distortion in the base year data would be perpetuated in the projections to the turn of the century. However, the extent of the difference between 1977 and 2000 is considered reasonable, as the projections incorporate only real changes in post-secondary attainment derived from Out of School - Into the Labour Force.

Detailed data on educational attainment by age are available from the 1976 Census. A table of these data is provided in the following pages. This information was not used in the main body of the report because analysis suggests that the Labour Force Survey data are more consistent with the adjusted 1961 and 1971 Census data than were the 1976 Census results.

TABLE III-1. 1961 Census Data Before Adjustments: Educational Attainment of the Population 15 and Over by Age Group and Sex

Age Group	Sex	Level of Education						Total
		Elementary		Secondary		Post-secondary		
		Grades 9-11		Grades 12-13		Some university		
		Degree						
(In thousands)								
15-24	Male	399.8	586.9	237.2	74.9	17.5	1,316.2	
	Female	314.9	616.5	309.1	47.4	12.2	1,300.0	
	Both sexes	714.7	1,203.4	546.3	122.2	29.7	2,616.2	
25-34	Male	491.6	413.6	211.1	50.8	67.4	1,234.4	
	Female	414.6	452.8	275.0	42.7	27.8	1,212.9	
	Both sexes	906.2	866.3	486.1	93.5	95.2	2,447.3	
35-44	Male	523.1	366.5	176.8	46.2	69.4	1,182.0	
	Female	478.1	408.0	244.8	37.0	23.7	1,191.6	
	Both sexes	1,001.1	774.6	421.6	83.2	93.2	2,373.6	
45-54	Male	501.5	254.0	123.2	30.8	44.1	953.7	
	Female	433.1	284.4	151.2	27.8	19.0	915.6	
	Both sexes	934.7	538.5	274.4	58.6	63.1	1,869.3	
55-64	Male	423.0	127.5	59.9	17.8	24.5	652.6	
	Female	367.4	156.5	83.1	15.8	9.8	632.6	
	Both sexes	790.4	283.9	143.0	33.6	34.2	1,285.2	
65+	Male	485.2	103.2	51.0	14.6	18.2	672.3	
	Female	464.8	148.4	81.4	14.0	6.7	715.2	
	Both sexes	949.9	251.6	132.4	28.6	24.9	1,387.5	
Total	Male	2,824.2	1,851.7	859.2	235.1	241.0	6,011.1	
	Female	2,472.9	2,066.6	1,144.5	184.7	99.1	5,967.7	
	Both sexes	5,297.0	3,918.2	2,003.7	419.7	340.3	11,979.0	

Source: Dominion Bureau of Statistics, 1961 Census of Canada, Population Schooling by Age Groups, Catalogue 92-557



TABLE III-2. 1971 Census Data Before Adjustments: Educational Attainment of the Population 15 and Over by Age Group and Sex

Age group	Sex	Level of education						Total
		Elementary		Secondary		Post-secondary		
		Less than Grade 8	Grades 9-11	Grades 12-13	Non- university	Some university	Degree	
		(In thousands)						
15-24 <sup>1</sup>	Male	285.6	979.0	317.2	162.1	201.7	72.4	2,018.0
	Female	233.2	940.4	379.5	218.0	154.0	55.5	1,980.6
	Both sexes	518.8	1,919.6	696.6	380.1	355.7	127.9	3,998.6
25-34 <sup>2</sup>	Male	340.6	463.0	202.8	135.9	109.1	151.1	1,402.5
	Female	315.7	501.8	229.4	189.2	95.4	68.8	1,400.3
	Both sexes	656.3	964.8	432.1	325.1	204.6	219.9	2,802.8
35-44 <sup>2</sup>	Male	484.4	396.4	138.3	82.4	70.3	102.3	1,274.0
	Female	425.5	432.8	158.1	113.2	59.0	37.2	1,225.9
	Both sexes	909.9	829.2	296.4	195.6	129.3	139.5	2,499.9
45-64 <sup>2</sup>	Male	958.6	538.5	189.1	92.4	87.5	112.8	1,978.9
	Female	896.2	620.3	229.3	153.5	79.6	45.0	2,023.9
	Both sexes	1,854.8	1,158.8	418.4	245.9	167.1	157.8	4,002.8
65 and over <sup>2</sup>	Male	528.0	130.5	62.5	14.7	20.3	24.0	780.0
	Female	578.9	209.6	95.0	39.2	23.7	11.3	957.7
	Both sexes	1,106.9	340.1	157.5	53.9	44.0	35.3	1,737.7
Attending school (25+)	Male	15.8	3.0	13.2	10.0	15.2	30.0	87.2
	Female	18.9	1.9	14.0	7.4	9.0	9.4	60.6
	Both sexes	34.7	4.9	27.2	17.4	24.2	39.4	147.8
15 and over	Male	2,613.0	2,510.7	923.1	497.5	504.1	492.6	7,540.6
	Female	2,468.4	2,706.8	1,105.3	720.4	420.7	227.2	7,649.0
	Both sexes	5,081.4	5,217.4	2,028.2	1,218.0	924.9	719.8	15,189.6

<sup>1</sup>Includes the population attending school and not attending school.

<sup>2</sup>Includes the population not attending school full-time only.

Note: The population attending school full-time with secondary grades 9-11 and grades 12-13 was estimated. Only total secondary full-time enrolment is available by age group from the 1971 Census.

Source: Statistics Canada, 1971 Census of Canada, Population - The School Population, Catalogue 92-742. Statistics Canada, 1971 Census of Canada, Population - The Out-of-school Population, Catalogue 92-743.

TABLE III-3. 1976 Census Data: Educational Attainment of the Population 15 and Over by Age Group and Sex

Age group	Sex	Level of education						Total
		Elementary		Secondary		Post-secondary		
		Some	Completed	Some*	Certificate or diploma	Degree		
(In thousands)								
15-24	Male	182.2	1,111.8	329.5	391.4	172.1	74.4	2,261.3
	Female	140.0	1,026.6	406.9	332.1	238.1	73.3	2,217.1
	Both sexes	322.2	2,138.4	736.4	723.5	410.3	147.7	4,478.4
25-34	Male	245.5	460.8	209.7	284.6	326.2	296.7	1,832.6
	Female	245.2	516.1	276.0	205.6	387.1	167.0	1,797.0
	Both sexes	490.7	976.9	485.7	490.2	713.3	463.7	3,620.6
35-44	Male	359.8	375.3	101.1	149.3	180.4	148.5	1,314.4
	Female	333.6	428.2	131.5	119.0	211.3	59.2	1,282.8
	Both sexes	693.4	803.5	232.6	268.3	391.7	207.7	2,597.2
45-54	Male	462.8	339.5	82.3	119.7	123.0	98.9	1,226.2
	Female	437.4	398.8	113.0	105.3	152.7	39.5	1,246.8
	Both sexes	900.2	738.3	195.3	225.0	275.7	138.4	2,473.0
55-64	Male	422.5	243.2	57.9	78.7	72.1	54.2	928.6
	Female	418.5	297.6	73.4	71.4	110.9	24.5	996.3
	Both sexes	841.0	540.8	131.3	150.1	183.0	78.7	1,924.9
65+	Male	541.7	175.3	30.6	51.2	41.3	35.3	875.4
	Female	636.1	255.9	47.5	61.3	108.6	17.4	1,126.9
	Both sexes	1,177.8	431.3	78.1	112.5	149.9	52.7	2,002.3
Total	Male	2,214.6	2,706.0	811.0	1,074.8	915.1	708.0	8,429.5
	Female	2,210.8	2,923.2	1,048.4	894.7	1,208.8	381.0	8,666.9
	Both sexes	4,425.4	5,629.2	1,859.4	1,969.5	2,123.9	1,089.0	17,096.4

\*May be overestimated because of inclusion of persons with trades/vocational training, or those who attended at post-secondary non-university institution for only a brief period.

Source: Statistics Canada, 1976 Census of Canada, Labour Force Activity, Labour Force Activity by Age, Sex and Educational Characteristics, Catalogue 94-806

APPENDIX IV

## PARTICIPATION RATES IN SELECTED LEISURE ACTIVITIES

"Rates of participation" by the population 15+ in eight leisure time activities are provided in the following tables. These are the age/education level matrices of participation rates (in hours per week or visits per 100 persons) that enabled the simultaneous effect of age and education on leisure activities to be analyzed and projected. They were derived from a leisure survey conducted in 1978 by the Cultural Sub-division of Statistics Canada's Education, Science and Culture Division. Numbers marked with a Q identify numbers with high sampling variability between 16.6% and 25%.

TABLE IV-1. Average Number of Hours of Reading per Week, by Education and Age Group, January-February 1978

Age group	Elementary	Some secondary	Completed secondary	Some post-secondary	Diploma/certificate	Degree	Total
15-24	4.1	5.3	5.9	6.2	5.8	6.6	5.6
25-34	3.6	5.6	6.1	6.7	5.6	7.0	5.8
35-44	4.1	6.1	7.3	7.1	7.1	7.2	6.2
45-54	4.8	6.6	7.7	9.6	7.3	7.4	6.5
55-64	6.6	8.8	10.0	9.8 <sup>Q</sup>	9.4 <sup>Q</sup>	10.9 <sup>Q</sup>	8.3
65+	6.1	9.6	9.4	10.8 <sup>Q</sup>	10.9 <sup>Q</sup>	...	8.0
Total	5.3	6.3	6.9	7.4	6.8	7.6	6.5

TABLE IV-2. Average Number of Hours of Television Viewing per Week, by Education and Age Group, January-February 1978

Age group	Elementary	Some secondary	Completed secondary	Some post-secondary	Diploma/certificate	Degree	Total
15-24	15.3	15.4	12.7	10.7	11.8	9.0	13.4
25-34	15.4	15.9	14.1	11.6	12.0	9.5	13.4
35-44	14.9	13.5	13.1	10.8	10.6	8.6	12.6
45-54	15.2	13.8	12.6	11.2	11.4	8.0	13.2
55-64	15.9	15.6	16.2	14.5 <sup>Q</sup>	13.1 <sup>Q</sup>	10.4 <sup>Q</sup>	15.3
65+	16.7	16.3	15.4	13.0 <sup>Q</sup>	14.2 <sup>Q</sup>	...	15.9
Total	15.7	15.1	13.5	11.4	11.9	9.1	13.7



TABLE IV-3. Museum and Art Gallery Visits in 7-week Period, by Education and Age Group, January-February 1978 (per 100 persons)

Age group	Elementary	Some secondary	Completed secondary	Some post-secondary	Diploma/certificate	Degree	Total
15-24	6.5	22.5	20.8	44.8	31.1	53.9	26.4
25-34	5.2	11.8	25.7	50.1	24.1	41.9	24.6
35-44	6.1	13.8	23.0	21.7	30.7	52.2	21.0
45-54	5.9	23.1	38.8	49.5	48.0	44.8	25.7
55-64	3.0	10.3	23.5	58.5 <sup>Q</sup>	54.6 <sup>Q</sup>	42.9 <sup>Q</sup>	16.7
65+	4.1	13.4	31.2	13.2 <sup>Q</sup>	59.2 <sup>Q</sup>	...	15.7
Total	4.9	17.4	25.2	42.4	34.5	48.2	22.8

TABLE IV-4. Library Visits in 7-week Period, by Education and Age Group, January-February 1978 (per 100 persons)

Age group	Elementary	Some secondary	Completed secondary	Some post-secondary	Diploma/certificate	Degree	Total
15-24	63.8	105.0	95.0	185.8	116.8	146.0	114.2
25-34	18.8	24.5	59.5	110.3	90.6	131.4	67.7
35-44	13.5	44.8	86.0	129.1	125.5	177.1	77.5
45-54	14.3	42.0	67.9	111.2 <sup>Q</sup>	80.6	112.0	50.7
55-64	11.8	49.9	50.1	91.9 <sup>Q</sup>	78.8 <sup>Q</sup>	122.7 <sup>Q</sup>	42.3
65+	19.1	45.1	91.8	87.1 <sup>Q</sup>	113.6 <sup>Q</sup>	...	48.5
Total	19.0	62.8	78.2	140.7	101.8	143.9	74.0

TABLE IV-5. Attending Live Theatre in 7-week Period, by Education and Age Group, January-February 1978 (per 100 persons)

Age group	Elementary	Some secondary	Completed secondary	Some post-secondary	Diploma/certificate	Degree	Total
15-24	13.2	22.2	16.1	27.2	19.3	49.1	21.6
25-34	3.4	9.3	11.5	14.4	21.7	24.3	14.0
35-44	13.2	12.6	18.4	14.3	20.1	26.5	16.5
45-54	3.2	12.6	17.9	34.4 <sup>Q</sup>	16.2	34.1	13.7
55-64	6.2	4.8	21.3	40.5 <sup>Q</sup>	20.5 <sup>Q</sup>	45.7 <sup>Q</sup>	13.1
65+	1.7	10.8	13.6	33.5 <sup>Q</sup>	43.3 <sup>Q</sup>	...	9.4
Total	5.6	14.6	15.7	24.7	21.7	30.1	15.8

TABLE IV-6. Film Attendance in 7-week Period, by Education and Age Group, January-February 1978 (per 100 persons)

Age group	Elementary	Some secondary	Completed secondary	Some post-secondary	Diploma/certificate	Degree	Total
15-24	127.9	174.9	195.4	233.2	216.2	236.1	192.0
25-34	50.0	77.3	106.5	124.7	108.5	140.1	100.5
35-44	60.5	63.3	59.7	68.3	79.5	101.9	69.1
45-54	27.8	40.8	48.5	42.4 <sup>Q</sup>	48.2	72.4	41.2
55-64	16.9	22.1	30.0	39.9 <sup>Q</sup>	28.3 <sup>Q</sup>	52.7 <sup>Q</sup>	24.1
65+	13.6	13.4	29.9	20.4 <sup>Q</sup>	15.0 <sup>Q</sup>	...	16.3
Total	36.2	96.2	113.9	141.2	105.8	124.9	93.5

TABLE IV-7. Attending Sports Events in 7-week Period, by Education and Age Group, January-February 1978 (per 100 persons)

Age group	Elementary	Some secondary	Completed secondary	Some post-secondary	Diploma/certificate	Degree	Total
15-24	141.1	198.2	161.3	143.3	134.3	89.7	166.6
25-34	98.4	110.5	108.3	107.4	95.3	63.5	98.4
35-44	110.4	142.6	132.5	177.7	117.4	93.8	127.0
45-54	85.1	103.3	63.7	90.8	102.5	79.9	88.0
55-64	45.4	46.8	45.1	71.2 <sup>Q</sup>	55.9 <sup>Q</sup>	42.6 <sup>Q</sup>	47.7
65+	21.0	32.1	38.7	66.2 <sup>Q</sup>	32.4 <sup>Q</sup>	...	29.4
Total	69.0	134.0	116.1	123.5	100.9	73.5	105.7

TABLE IV-8. Average Number of Hours per Week of Participating in Sports, by Education and Age Group, January-February 1978

Age group	Elementary	Some secondary	Completed secondary	Some post-secondary	Diploma/certificate	Degree	Total
15-24	3.9	4.9	4.3	4.4	3.6	3.9	4.4
25-34	2.0	2.8	2.6	2.8	3.7	3.0	2.9
35-44	1.3	2.3	2.5	1.6	3.0	2.9	2.2
45-54	1.3	2.0	1.8	2.5	2.4	3.9	2.0
55-64	1.0	1.4	3.1	2.4 <sup>Q</sup>	2.0 <sup>Q</sup>	3.7 <sup>Q</sup>	1.7
65+	0.8	1.2	2.1	1.5 <sup>Q</sup>	2.7 <sup>Q</sup>	...	1.2
Total	1.4	3.1	3.1	3.1	3.2	3.3	2.7





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